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ABSTRACT

A critical piece of information in the selection process for academic positions is the letter of recommendation. A study was conducted to determine if differences exist in the letters written for female versus male candidates for academic positions. Using letters which were retyped to avoid personal, institutional, and sex-specific identification, the letters were coded on a number of coding categories, including length of letter, reference to personal and professional attributes, use of "masculine" versus "feminine" words, and proportion of words devoted to research and teaching. Sex differences in file variables which might account for differences in letters of recommendation, such as number of publications, grades, research and teaching assistantships, and teaching experience, were assessed. Sex of recommender, quality of institution, academic area, and year of recruitment (1975-76 and 1977-78) were used as major control variables. Results favored males in two variables: presence of a negative statement and proportion of highest intensity modifers. Many variables hypothesized to favor males showed no sex differences (words denoting ability, masculine terms, length of letter). Stereotypically feminine references to non-job-related qualities, such as appearance, were infrequently found. A number of indicators favored females: emphasis on research versus teaching, formality of address, and clinical skills. Distinct area patterns were found, particularly in clinical psychology. Changes from 1975-76 to 1977-78 all favored females. Interpretation of data suggests no clear sex bias against females but instead a tendency to avoid bias against females. (Author/BM)

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THE LETTER OF RECOMMENDATION: A KEY TO WOMEN'S CAREER EQUITY

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SUMMARY

THE LETTER OF RECOMMENDATION: A KEY TO WOMEN'S CAREER EQUITY

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The letter of recommendation is a critical piece of information in the selection process for academic positions. In the extensive consideration given in recent years to the barriers, both structural and psychological, to women entering academic professions, little attention has been given to the reference letter. Despite White's (1972) acknowledgement of the importance of the letter of recommendation, social scientists have failed to investigate it as a link between the educational and occupational worlds. This is surprising in view of the extensive (theoretical if not empirical) literature on the protege system which suggests that female students face serious obstacles when they seek sponsors among the primarily male professorate. Although it may be obvious that negative comments in letters are likely to eliminate a candidate from consideration, more subtle aspects of letters may be increasingly influential, particularly in view of the current open file policy which tends to decrease the likelihood of clear negative statements.

Method

Data Bank

The data bank consisted of letters of recommendation written for candidates for positions in the Psychology and Sociology departments at California State College, San Bernardino during the 1975-1976 and 1977-1978 academic years. The final sample consisted of 1049 letters (522 for females and 527 for males) and 294 candidates broken down by area as follows: Clinical Psychology--44, Developmental Psychology--64, Experimental-Social Psychology--50, making a total of 158 psychology candidates in all, and 136 Sociology candidates. Stratified random sampling techniques were employed to select equal numbers of male and female applicants within each of these areas. Only analyses with the letter rather than the candidate as the unit of analysis are presented here, and the mean number of letters per candidate was 4.3.

Content analysis was used to code the letters on over 50 variables in an effort to provide as broad a base as possible for the examination of sex bias in letters of recommendation. Four graduate students were extensively trained in the use of the coding schema before being given letters from which all sex, personal, and institutional identification had been deleted. Variables for which a minimum reliability of .80 could not be achieved were either modified or omitted; for the retained variables, the mean reliability was .92 and the median was .94. Control data from the applicant files (such as institutional quality, grades in graduate school, and sex of recommender) were coded by the principal

investigators. Analyses were done controlling for sex of recommender, institutional quality, year of recruitment, 1975-1976 and 1977-1978, department, and area--Clinical, Developmental, and Experimental-Social Psychology, and Sociology. All findings discussed here are significant at the .05 level or beyond, unless otherwise noted, using either Chi-squares or Anovas.

Results

Control Data

Sex differences obtained from the files,[1] including the vita, graduate school transcript, and introductory letter, show an interesting pattern. A number of indicators favored female candidates. Females were more likely to have received grants, especially in 1977-1978. Females had fewer percent B's in graduate school. A combined index using percent B's and percent C's in graduate school shows females had higher graduate school grades. They had more years of fellowship and trainee support while in graduate school. Their number of undergraduate honors was higher and more females were Phi Beta Kappa. In general, then, their performance as students was higher than that of males.

Males, on the other hand, were higher on indicators of research outcome. On a measure of publications and presentations, with publications weighted more heavily than presentations, and sole authorship more heavily weighted than multiple authorship, males scored higher, as well as on just the total number of publications and presentations. The publication edge was greater in 1975-1976 than in 1977-1978. Although in all areas studied, males published more at the highest level (3+ publications), females published and presented more at the moderate level (2 publications or presentations) in Experimental-Social Psychology and in Sociology. It is important to note that these differences cannot be accounted for by quality of institution or differences in when the candidates received their Ph.D.'s because no sex differences were found on these two critical moderators of productivity.

Besides research output, males, more than females, had more extensive experience as TA's (no difference in RA's was found), had more consulting jobs, more postdoctorates, and more professional experiences (e.g., reviewer for manuscripts). Our measure of teaching experience shows consistent but complex differences. Males clustered at the highest level of teaching experience, having held more full-time teaching jobs, and at the lower end, TA's alone. Females clustered at the middle, having taught one to four courses on their own more frequently. The only exception here is Developmental Psychology, the most traditionally female specialty, where females had more full-time teaching positions. Also,

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[1] Sixty-six letters were written for non-white candidates. Separate analyses involving race were not done because too few candidates were members of minorities and a number of them were foreign students.

the difference in teaching positions is stronger in 1975-1976 than in 1977-1978.

Only 171 of the recommenders were female, while 842 were male. Female recommenders wrote proportionately more letters for females and male recommenders for males. As might be expected, male recommenders in general had higher positions than female recommenders, but only in Sociology did male candidates have recommenders with higher academic positions, e.g., full professors and deans. Our measures to assess strength of relationship between candidates and recommenders showed no sex differences in explicitly stated length of relationship and strength of relationship.

Only 66 or 6% of the female candidates' letters used the designations "Miss" or "Mrs." in the letter. More female recommenders used the marital designation than did male recommenders, and a number of the female recommenders who indicated marital status of the applicant were from outside the academic institution. Eighteen percent of the letters contained some negative statement, however mild. More letters for females contained a negative statement, but when broken down, the effect was only for Sociology and only in 1975-1976, suggesting that sociologists are becoming less biased. Only 4.6% of the letters mentioned appearance of the candidate, 16% mentioned gender, 16% mentioned age (primarily young), .8% mentioned non-job related qualities, 5% mentioned personal life, and 5% described the marital status of the candidate in the letter. Letters for males mentioned sex and age more frequently, e.g., "young man." These data indicate minimal overall frequency of those indicators which might be assumed to be present in females' letters. Of those indicators with large enough frequencies to determine sex bias, only presence of a negative statement and mention of sex and age were significant. An important piece of information that suggests absence of clear bias is that no differences were found in actual length of the letter written for males and females.

Separate analyses for clinical candidates showed that females had more extensive clinical experience (over 5 distinct experiences); males had more moderate clinical experience (3-4 distinct experiences); and females were more likely than males to have the baseline 1-2 experiences. This measure included the clinical internship. Male clinical candidates had more recommendations from their doctoral training institution, which, along with females' more extensive clinical training, may account for the finding that female clinical candidates had a greater proportion of their letters dealing with their clinical skills than did male clinical candidates.

Formality of address

Females were referred to more formally in letters than were males. The proportion of the use of first name alone in referring to the candidate relative to other designations, such as full name, and title plus full or last name, was greater for males than for females. Even in the

initial form of address, i.e., how the candidate was introduced, females were more formally introduced, especially by male recommenders. Additionally, males were referred to more frequently by the use of their full name, especially in Experimental-Social Psychology and Sociology, and females were referred to more frequently, proportional to other designations, by title, such as Dr., Professor, or Ms. An exception to these findings was in Clinical Psychology, where female candidates were referred to by first name more often than males and no difference was found in the proportion of titled reference. In general, Psychology used more informality of address than did Sociology and the difference in use of titles for females and males is seen most significantly in Sociology. Eliminating Clinical Psychology, a variety of interpretations are possible for the greater emphasis on formality of address for females. Briefly, one might suggest a "politeness" factor, lesser familiarity between mentors and female proteges, and/or most likely in our estimation, an attempt by recommenders to "bend over backwards" to avoid sex bias in its most obvious manifestations.

Indices Based on Frequency Counts

Several indices were based on how frequently specific kinds of words occurred in each letter. They included words indicating ability and effort, masculinity and femininity, the number of different positive characteristics described, and the frequency of extremely positive modifiers relative to all positive modifiers.

Although no sex difference in masculine terms appeared, a trend ($p = .06$) was found for females to have more feminine words in their letters, particularly in Developmental and Clinical Psychology. Using a Chi-square analysis based on presence or absence of feminine words, 84% of the Clinical females relative to 61% of the Clinical males had feminine descriptors in their letters but in Experimental-Social Psychology, the reverse tendency occurred with 71% of the males' and 60% of the females' letters containing such descriptors.

For ability and effort, only a marginal overall trend (.08) was found for words indicating ability in a direction opposite, however, to what the literature might predict with females described in more ability-oriented terms. For effort, female candidates were more often described as exhibiting effort or motivation, but the difference was significant only in 1975-1976.

For the number of different positive characteristics, female Clinical candidates had a greater number of positive traits in their letters than did Clinical males. Otherwise, no differences were found.

The proportion of highest intensity modifiers, corrected for number of positive modifiers, showed that with the exception of Developmental Psychology, males had a higher proportion of extremely positive modifiers. For the frequency data, the proportion of highest intensity modifiers was the only clear evidence of sex bias in favor of males.

Research, Teaching, and Clinical Skills

Two primary kinds of measures were used here: the proportion of words devoted to research, teaching, and clinical skills relative to length of letter and the proportion of words of evidence about research, teaching, and clinical skills relative to total words in the relevant category. Evidence refers to specific descriptions of the candidate's performance in those areas, rather than global statements, and was coded when the recommender indicated objective and direct knowledge of the candidate's performance in that area, e.g., observed the individual teach, supervised clinical training, read the individual's research, or served as dissertation advisor. Although many letters talked about neither research nor teaching, a correlation of -.26 was found between the proportion of words devoted to these two key dimensions.

Research, perhaps the key indicator of a candidate's potential to many institutions, showed differences depending on area. In Sociology, the proportion of words devoted to research for females was higher than for males, but in Clinical Psychology, this proportion was higher for males, though not significant. Developmental and Experimental-Social Psychology showed no differences. (It should be mentioned that the two areas showing male-female differences - Clinical Psychology and Sociology - also had the lowest proportion of words devoted to research.) Whereas males and females have the same proportion of words devoted to research in 1975-1976, only females showed an increase in 1977-1978, suggesting again a recent tendency to favor females. An additional variable was used to assess the salience of research versus teaching, namely, whether research or teaching was first described in the letter. The letters for females mentioned research first, but only in 1977-1978.

Teaching, the other major aspect of academic competence, also showed differences according to department, though not in the same direction as those found for research. Among Clinical candidates, the proportion of words devoted to teaching was particularly low (14%), and no sex differences were found. Contrary to findings on research, Sociology letters emphasized teaching for males more than females. Developmental and Experimental-Social letters both favored females over males in terms of teaching. From 1975-1976 to 1977-1978, the proportion of words devoted to teaching increased for males but not for females, the opposite of what was found for research.

For Clinical candidates, the proportion of words devoted to clinical skills is higher for females than males. In contrast to research and teaching, the proportion of words devoted to clinical skills decreased from 1975-1976 to 1977-1978.

Since objective evidence supporting a recommender's judgments are often weighted more heavily than more global statements about research, teaching, and clinical skills, measures were used which examined such evidence. When measured in terms of presence-absence, only Sociology revealed a difference: Research evidence was more likely to be found in

letters for females than those for males. On an additional measure indicating the presence of extensive and concrete descriptions of the candidate's research, 1977-1978 letters revealed that more letters for females than for males contained research descriptions.

Evidence on teaching showed different patterns. Only Clinical males and females differed in the presence of words devoted to teaching evidence, with females having more evidence than males. In general, females in 1975-1976 had more such evidence than did males, but this pattern was reversed in 1977-1978 with males higher on teaching evidence.

Evidence on clinical skills showed that more evidence was presented for females than for males. As with clinical words, less evidence on clinical skills appeared in 1977-1978 letters than in those from 1975-1976.

A composite measure combining research, teaching, and clinical evidence favors females over males.

An overall generalization might be that both the "words" and "evidence" variables favor females with regard to research and, to a lesser degree, males with regard to teaching in the latest year. This represents a change from the notion of female as teacher and male as scientist, and is especially true of Sociology. Clinical Psychology exhibits a pattern which is distinct not only from Sociology but also from the other areas of Psychology. In view of the fact that males far exceeded females at the highest levels of research productivity, the emphasis on research in letters for females is surprising.

Conclusion

Clearly, the prototypical letter containing numerous and overt indicators of bias against women rarely occurred in this sample of recommendations. While a few key indices favored males (namely, the presence of negative statements and the proportion of highest intensity modifiers), more measures were biased toward females, particularly in the most recent year. For example, though men were more likely to produce more research than were women, the letters for females devoted proportionately more words and evidence to research than did those for males.

Because of the nature of these disciplines and their well-publicized effort at eliminating sex discrimination, one might expect apriori that Psychology and Sociology letters would exhibit less sex bias than would those of other disciplines. In this connection, it is interesting to note that, even within areas of Psychology, differential patterns were found. Clinical Psychology has to be analyzed as a unique configuration. Accordingly, caution must be used in generalizing from this study to other academic disciplines and, certainly, to reference letters written outside of academia. Nevertheless, our measures of equity in letters of recommendation are of particular importance because, unlike such other

operationalizations of equity as position levels in academia which take long to redress, these letters may show more immediacy of response to the awareness of inequity. All of our measures which show change from 1975-1976 to 1977-1978 indicate movement away from sex-stereotyping. If female Psychologists and Sociologists are subject to discrimination in the hiring process, then, our research suggests that it is not on the basis of the letter of recommendation.

Abstract

A critical piece of information in the selection process for academic positions is the letter of recommendation. While recommenders may be aware of obvious forms of sex-biasing of letters, more subtle differences may still be found which bias the letter in a sex-specific direction. The intent of the present study was to determine if differences exist in the letters written for female versus male candidates for academic positions. Using letters which were retyped to avoid personal, institutional, and sex-specific identification from the content, coders coded the letters on a number of coding categories, including length of letter, reference to personal and professional attributes, use of "masculine" versus "feminine" words, and proportion of words devoted to research and teaching. Sex differences in file variables which might account for differences in letters of recommendation such as number of publications, grades, research and teaching assistantships, and teaching experience were assessed. Sex of recommender, quality of institution, academic area (Clinical, Experimental-Social, Developmental Psychology, and Sociology), and year of recruitment (1975-1976 and 1977-1978) were used as major control variables. Results favored males on two variables: presence of a negative statement and proportion of highest intensity modifiers. Many variables hypothesized to favor males showed no sex differences, e.g., words denoting ability, masculine terms, length of letter. Stereotypically feminine references to non-job related qualities (e.g., to appearance) were infrequently found. Indeed, a number of indicators favored females: emphasis on research versus teaching, formality of address, and possibly clinical skills. Distinct area patterns were found, particularly in Clinical Psychology. Most significantly, changes from 1975-1976 to 1977-1978 all favored females. Interpretation of the data suggests no clear sex bias against females but rather, to some degree, a pattern of "bending over backwards" to avoid bias against females.

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Problem

In the extensive consideration given in recent years to the barriers, both structural and psychological, to women entering academic professions, virtually no attention has been given to the letters of recommendation written for candidates for academic positions. Although letters of recommendation may not play a significant role in the initial selection process, narrowing the field of otherwise eligible candidates to the final few with whom interviews will be scheduled may depend largely on the strength of these letters. If funds for hiring are minimal, an extremely small proportion of eligible candidates will be interviewed from the larger sample who have been encouraged to "complete their files." It may be obvious that negative comments in letters are likely to eliminate a candidate from consideration, but more subtle aspects of letters may be increasingly influential, particularly in view of the current open file policy which tends to decrease the likelihood of clear negative statements. Thus, a candidate may be "damned by faint praise" or rated lower because his/her letters are less spectacular than another candidate's letters. To the extent that sex differences in quality of letters do not reflect more objective criteria in the candidate's file, however, it can be said that differences in letters written for males versus females reflect inequity, i.e., bias in the hiring process in favor of males. In equity terms, if Output = letters of recommendation or evaluation by mentors and Input = graduate performance criteria (grades, publications, etc.), an inequitable situation occurs if $\frac{O_{female}}{I_{female}} < \frac{O_{male}}{I_{male}}$ or the reverse. (See Walster, Walster and Berscheid, 1978, for recent discussion of equity).

Despite the acknowledged importance of the letter of recommendation (White, 1972), social scientists have failed to investigate it as a link between the educational and occupational worlds. Such an investigation is critical to an understanding of women's career equity. This is surprising in view of the extensive (theoretical if not empirical) literature on the protegé system which suggests that female students face serious obstacles when they seek sponsors among the (primarily) male professorate (Epstein, 1970; Bernard, 1964; White, 1972; Feldman, 1974). Such professors typically: (1) question the commitment of women students who, they worry, may be sidetracked by family life (but see Astin, forthcoming); (2) bypass "less needy" females in favor of male students whose family obligations necessitate financially secure careers; (3) fear potential repercussions from wives as a result of their relationship with female apprentices.

Professors seek to choose their own successors and gain prestige via the accomplishments of their protegés (Roe, 1966). Accordingly, they are less likely to "invest" in a female student whose productivity they too often feel is a less sure return and with whom they may feel uncomfortable in any case ("She does not belong to the club"). Those few women students male professors do agree to sponsor typically remain tokens, deviants whose gender proves to be their dominant characteristic

(Laws, 1975); whereas for their male counterparts, their work constitutes the crucial evaluative dimension (Bernard, 1972). The expectations of sponsors for future professional output reflect the gender of the female student more than her track record (Laws, 1975). Not surprisingly, women students are more likely than male ones to have run through a series of different sponsors (Laws, 1975). Thus, subtle, as well as overt, structural discrimination accounts for the differential attrition rates (Bernard, 1976), self-confidence levels (Bernard, 1976), and less adequate professional socialization of female versus male students (Feldman, 1974; Kaufman, 1978).

Once on the job, females continue to suffer from this "stag effect" (Bernard, 1976). The "interclass mobility" that tokenism in graduate school dangles before them (Laws, 1975) is severely limited by their exclusion from the all-male informal networks (the "buddy" system) that inform the professional of: (1) the newest ideas that will not appear in print for another two to three years; (2) the research interests currently funded by granting agencies; and (3) the choice positions for which advertisements too often serve as affirmative action precautions (Epstein, 1970). The effects of this situation (the "old boy" network) on the career success of women professionals has been well-documented (see Theodore, 1971, for an overview of the status of the professional women). They advance far more slowly and in far lower proportions in comparison with their male colleagues (Bienen, Ostriker, and Ostriker, 1977; Carnegie Commission, 1973; Chronicle of Higher Education, 1978; Meritt, 1976). They land positions at less prestigious universities with heavier teaching loads (Bienen, Ostriker, and Ostriker, 1977). They are channeled into the less prestigious specialties of their disciplines (Epstein, 1970). Their articles are published in lesser journals (Epstein, 1970); and they receive less pay for equal work (Meritt, 1976).

Though their incentives for continued investment are thus lower, the evidence regarding the quality and quantity of their output is contradictory (again, see Astin, forthcoming). Whether one concludes that the productivity level of female academics equals or fails to reach that of males, it is clear that neither our educational nor occupational institutions promote career equity for women. Clearly, the educational institution feeds into the job market; yet, existing research into "women's place" in these institutions has not examined extensively the transition from graduate school to occupation. Rather, it has assumed the link and proceeded to jump back and forth from graduate school to the occupational sphere. Letters of recommendation, constituting as they do the very end-point of the educational process, need examination as the bridge between these two institutions. If the sponsorship system is as essential to the job placement and career success of entry-level professionals as the literature has suggested, then the letters of such sponsors are a particularly important indicant of male versus female career equity. Such letters, after all, are subjective extrapolations of the graduate student's overall, objective intellectual product and potential. Yet, it is such subjective

evaluations that produce objective consequences for those hired or not hired.

Experimental Studies of the Hiring Process

Three studies (Simpson, 1970; Fidell, 1970; and Lewin & Duchan, 1971) have experimentally examined the effects of sex of applicant on evaluations by people in academic and academic administrative positions with the use of bogus descriptions of candidates.

Simpson (1970) sent paired descriptions of candidates hypothetically applying for higher education positions to deans, department chairs, and faculty in six colleges in Pennsylvania. Four pair of male and female candidates were equally qualified and two pair presented the female as more qualified. When descriptions of males and females were equal in qualifications, the male was chosen more frequently. When the female's qualifications were superior, females were chosen. No differences were found for level of position of the respondents; however, older respondents (41-50) and those who had a traditional attitude toward women selected the least number of female candidates. High female employment fields selected more equally qualified females than low female employment fields.

Fidell (1970) sent one of two forms to psychology chairs of 228 colleges in the United States offering graduate degrees in psychology. The 155 respondents rated the desirability and possible level of appointment of ten hypothetical male and female psychologists varying on nine dimensions relevant to the hiring process. The ten candidates were also ranked. No differences were found for desirability ratings or average ranks; however, women were seen as qualified for lower positions than males. More offers would be made to women at the assistant professor, rather than associate professor, level.

Lewin and Duchan (1971), in a similar study, sent one of four resumes to chairs of physical science departments: two average resumes, one male and one female; one excellent female resume (not used in the data analysis); and one superior female resume. The superior woman was rated higher than the average man. Although Lewin and Duchan suggested that the average male was consistently rated higher on educational background and rated more positively for hiring, the comparison was not statistically significant. Greater bias was found for chairs in the East and West than the Midwest and South, in schools above the median in quality, and by younger and newer chairs.

The results of the three studies do indicate trends toward bias for male candidates for academic positions. Not all bias effects were statistically significant. Additionally, one study showed more biasing in older respondents (Simpson, 1970) and another study (Lewin and Buchan, 1971) showed more biasing by younger respondents. Studies using bogus descriptions of hypothetical candidates are particularly subject to biasing demand characteristics, particularly when subjects

are asked to evaluate both male and female candidates. More clearly stated, chairs and other respondents may have been aware that the purpose of the rating task was to determine sex differences in evaluations. Thus, it is surprising that any biasing occurred at all. The data for the three studies were collected in the late 1960's or at the latest, 1970. A more recent study (Soto & Cole, 1975), using college students as subjects, found no sex biasing against bogus employment applications for business managers.

Little work has been done on the letter of recommendation as an isolated component of the academic credentials a candidate brings to the prospective employer(s). Rim (1976) assessed the reliability of simple ratings (positive, indifferent or ambiguous, and negative) of letters of recommendation for academic positions using five professors as judges of the same letters. He found disagreement over all three levels of judgment for twenty percent of the letters as well as a wide range of scale judgments for individual candidates. The judges did agree on extreme letters, both positive and negative. The quality of the institution was not related to the letter judgments; however, with the exception of extremely positive letters, when the judges were given the name of a university associated with the letter, they rated letters attributed to either prestigious or nonprestigious institutions more favorably than when they did not know the institution.

Longer letters were rated more favorably although ambiguous letters (those judged more differently by judges) were particularly long. These findings imply that a high percentage of letters of recommendations are not rated the same degree of favorability. On the other hand, extreme letters were rated identically. Moreover, the use of a gross three level rating scale on a complex set of materials that has many evaluative dimensions within it might be expected to yield unreliability at the middle ranges. Given the differences between judges on the use of the three levels, it might be assumed that judges use different implicit criteria or decision rules in judging the favorability of a letter of recommendation.

In a study of sex discrimination in the use of letters of recommendation, Kryger and Shikiar (1978) varied the sex of the letter writer, sex of the applicant, and favorability of the letter (favorable versus unfavorable) by sending one of eight bogus letters varying on these dimensions to male personnel administrators. The personnel administrators knew that the letter of recommendation was being studied for fairness of evaluation; i.e., they did not think they were reviewing an actual candidate. A reverse bias was found with respondents indicating that they would be more likely to proceed with an interview with female applicants and rating the female applicants as having greater initiative, responsibility, and greater ability to learn quickly. On the other hand, female applicants were more likely to be considered for a lower level position than the one for which they applied and respondents were more likely to wish to telephone the letter writer of a female applicant for elaboration on specific points. These two last

findings were interpreted as bias for females; however, it seems that they are, at best, ambiguous as to meaning. Whether it is favorable toward females to consider offering them a lower level position is open to interpretation.

The female letter writer was seen as more accurate when she wrote a favorable letter for a female than when she wrote other letters. The authors interpreted sex of letter writer findings as indicating more perceived subjectivity when the letter is written by a female than by a male. The authors' major interpretation of the study as the effects of personnel managers' "concern with compliance with federal Affirmative Action regulations" is undercut by the undisguised nature of the study and the effects of demand characteristics and social desirability. Also, the study did not evaluate differences in actual letters written for females and males.

Another sex bias may focus more on bias toward masculinity rather than men per se. Harris (1976) found that teachers described as masculine were rated much more positively by college students on a set of evaluative dimensions, with the exception of warmth. The promasculine effect increased as the institutional level of the hypothetical teachers increased from nursery school to college. If letters of recommendation reflect sex differences in ascribed masculinity, a biasing effect may still be indirectly inferred; i.e., males may be described in more masculine terms and consequently may be seen as more qualified in the academic world which has been said by Rich (1975) to embody masculine virtues and values.

In summary, none of the research on ratings of academic candidates has utilized letters of recommendations as a variable in the hiring process which can contribute to (perhaps unintended) bias. Otherwise equivalently qualified candidates may be discriminated on the basis of depth and strength of recommendations. In this period of scarcity of academic positions, letters may play an increasing role in the process of selection.

Sex Bias in Evaluations of Achievements

Since 1968, when Goldberg, using female college students as subjects, showed that articles presumably written by women are rated lower than the same articles attributed to male authors, psychological research has focused on differential evaluations of achievements of men and women as well as attributions for the causes of female and male performance. Pheterson, Kiesler, and Goldberg (1971) found prejudice against women, i.e., lower evaluations of work done by women, exhibited by both men and women, transcending gender of task or occupation. Both Mischel (1974) and Weissbach, Lewis & Saperstein (1974) found that articles attributed to males were preferred when written about male fields but articles attributed to females were preferred for female fields. In contrast, Israeli subjects were not biased at all in evaluations of the same articles in the study by Mischel (1974). A recent

study (Kaschak, 1978) found male bias using sex of described professor. Two additional studies (Chobot, Goldberg, Abramson & Abramson, 1974; Abramson, Goldberg, Greenberg & Abramson, 1977) have failed to replicate the sex biasing effect. If evidence for sex biasing of achievements is extrapolated to the hiring process, it would be most apparent in letters of recommendation in which evaluations are more global, less tied to direct evidence such as grades or research productivity, and by their very nature, are more subject to rating biases.

More recent research in the evaluations of achievement has been directed toward the perceived origins of male and female success and failure, i.e., attributions. Although achievements may be seen as equal in strength, differences in perceived causes of the success may affect overall evaluation of the achiever. Deaux and Emswiller (1974) found that male performance on a masculine task was seen as due more to skill and female performance on that task was viewed as more due to luck. Feldman-Summers and Kiesler (1974), in a study of attributions of causality for a female vs. male doctor's success, found that the male subjects attributed more ability to the male doctor and saw the female doctor as trying harder. Similarly Feather and Simon (1975) found that male success for a number of occupations was attributed to ability more than was equivalent female success. Since ability is a stable dimension, i.e., once a person is attributed to have the ability to succeed, that ability is seen as remaining constant, attributions of ability are particularly important in predicting an academic candidate's future performance. Effort attributions are less stable than ability, and a candidate whose performance is attributed to "trying hard" may be less positively viewed than one who is seen as having ability. Although letter writers may never attribute male or female candidate's performance to luck, sex biasing may occur in differential attributes to ability vs. effort.

Language

Recent studies suggest that (1) women and men speak distinct languages (Warshay, 1972; Lakoff, 1975; Henley, 1977) and (2) both women and men speak differently about women than they do about men (Lakoff, 1975; Miller and Swift, 1977). Thus, women have been found to have sex-specific vocabulary (Lakoff, 1975), to use more grammatical language (Henley, 1977), to rely on tag-sentences (The way prices are rising is horrendous, isn't it?"--see Lakoff, 1975), and to state their case less assertively than do men (Lakoff, 1975; Henley, 1977).

It is difficult to predict, however, the degree to which these sex differences in everyday conversational language would also characterize letters of recommendation. Many of the most noted language differences, e.g., tag-sentences, are not even likely candidates for appearance in such recommendations. Moreover, academic letters are written by women and men trained to use similar forms of scholarly and scientific communication. Some of the confounding due to levels of education and other variables (e.g., comparisons between housewives

and male business executives) is eliminated when female and male academicians are used as the sample group.

In view of our focus on academic letters of recommendation, there is more reason to assume that sex differences will be more likely to emerge when women are examined as the objects, rather than the writers, of letters. Along with previously mentioned dimensions such as causal attributes and sex-typed labels, forms of address, for example, may serve as indicators of differential status. The use of first names, full or last names, and formal titles (e.g., Dr., Professor, Ms.) may suggest either equality (and intimacy) or superiority depending upon the context of the interaction (Henley, 1977). It is well-known, for example, that, in formal interaction, women are more commonly addressed by their first names than men are (Henley, 1977). This might imply intimacy and attribution of equal status, as it does when a mentor refers to a protege and thus one might expect it to occur more often when male applicants are described. On the other hand, language about women often tends to be more polite than language about men (Lakoff, 1975). Thus, the use of the titled name might imply subordination, as when distance or chivalry is indicated, and therefore one might anticipate that it is more common when female candidates are discussed. Accordingly, something as "taken-for-granted" as the reference system utilized by the letter-writer acts as a subtle cue to the letter-reader of the importance and (thereby) the competence of the job applicant.

Method

Data Bank

The data bank consisted of letters of recommendation written for candidates for positions in the Psychology and Sociology departments at California State College, San Bernardino during the 1975-1976 and 1977-1978 academic years.[1] Table 1 presents the universe of applicants by sex, area, and year, and indicates disproportionality (by area) in the numbers of male and female job candidates.

Table 1
Universe of Applicants by Sex,
Academic Area, and Year of Recruitment

	Academic Area and Year of Recruitment				
Sex of Applicant	Clinical Psychology (1975-76)	Developmental Psychology (1975-76)	Experimental-Social Psychology (1977-78)	Sociology (1975-76)	Sociology (1977-78)
Female	21	33	39	43	20
Male	54	44	122	51	94

Stratified random sampling techniques were employed to insure equal numbers of male and female applicants within areas.[2] The final sample consisted of 284 candidates (half male and half female) and 1049 letters (522 for females and 527 for males). The mean number of letters per candidate was 4.3, and no sex differences were found for number of letters. Table 2 specifies the sample size by sex, area, and year using the candidate and the letter respectively as the unit of analysis.

Table 2
Sample of Applicants and Letters by Sex of
Applicant, Academic Area, and Year of Recruitment

	Academic Area and Year of Recruitment				
Number of Applicants	Clinical Psychology (1975-76)	Developmental Psychology (1975-76)	Experimental-Social Psychology (1977-78)	Sociology (1975-76)	Sociology (1977-78)
Female	21	33	25	43	20
Male	21	33	25	43	20
Number of Letters					
Female	81	98	126	150	67
Male	90	89	126	145	77

[1] Sampling did not include the 1976-1977 academic year because no sociology positions were advertized during this period.

[2] The sampling of different areas in psychology was confounded by year of recruitment since different specialties were advertized in the two years.

Procedure

Content analysis was used to code the letters on 60 variables in an effort to provide as broad a base as possible for the examination of sex bias in letters of recommendation. Four graduate students were extensively trained in the use of the coding schema before being given letters from which all sex, personal, and institutional identification had been deleted. Training included eight formal two-hour group sessions in addition to frequent individual consultations. These training sessions initially involved the explanation and illustration of the coding scheme and later included detailed review of the coding of our sets of 20 practice letters each. New written instructions and examples were provided as necessary to clarify previous errors and inconsistencies.

Intercoder reliability was assessed on the last three sets of practice materials. Proportion of agreement measures were used to assess intercoder reliability on both nominal and ordinal variables; Pearson's *r* served as the reliability measure for interval-level variables. Variables for which a minimum reliability of .80 could not be achieved were either modified or omitted; for the retained variables, the mean reliability was .92 and the median was .940. Table 3 specifies the obtained reliability for each variable included in the analysis.

Table 3
Obtained Reliability Levels by Variable

Variable	Reliability Level
1. Initial Statement: Active-Passive	.85
2. Length of Letter	1.00
3. Mean Sentence Length	.92
4. Length of Relationship	.80
5. Extensivity of Knowledge	.95
6. Form of Address in Initial Statement	.91
7. Frequency of Form of Address: First Name	1.00
8. Frequency of Form of Address: Full or Last Name	.99
9. Frequency of Form of Address: Titled References	.98
10. Causal Attribution: Ability Terms	.94
11. Causal Attribution: Effort Terms	.89
12. Masculine Terms	.95
13. Feminine Terms	.91
14. Number of Different Positive Attributes	.94
15. Placement of Research Versus Teaching	.81
16. Number of Words Devoted to Research	.87
17. Number of Words of Direct Evidence on Research	.88
18. Positive Mention of Publications and/or Presentations	.83
19. Favorable Comparison with Faculty on Research	.95
20. Extensive Description of Research	.80
21. Number of Words Devoted to Teaching	.90
22. Number of Words of Direct Evidence on Teaching	.90
23. Favorable Comparison with Faculty on Teaching	.97
24. Mention of Teaching Evaluations	.95
25. Number of Words Devoted to Clinical Skills	.94

26.	Number of Words of Direct Evidence on Clinical Skills	.95
27.	Comparison of Applicant's Rank with that of Current and/or Previous Students at the Same Level	.80
28.	Comparative Statements	.80
29.	Frequency of Highest Intensity Modifiers	.91
30.	Frequency of Moderate Intensity Modifiers	.91
31.	Presence of Negatively-Phrased Positive Statements	.80
32.	Presence of Qualifier	.90
33.	Mention of Physical Appearance	1.00
34.	Mention of Gender	.97
35.	Mention of Age	.89
36.	Mention of Interrupted Career or Change in Career	1.00
37.	Presence of Non-Job Related Qualities	1.00
38.	Mention of Personal Life	1.00
39.	Assessment of Marital Status	.97
40.	Highest Summary Recommendation	.92
41.	Welcome as a Colleague	.87
42.	Bright	.97
43.	Sociological Imagination	1.00
44.	Independent	.95
45.	Creative	.97
46.	Broad Background	.92
47.	Well-trained	.97
48.	Thorough	.97
49.	Conscientious	1.00
50.	Well-organized	.97
51.	Popular with Students	.80
52.	Analytic	.97
53.	So	.88
54.	Very	.92
55.	Mature	1.00

Measures

Control Data. Control data from the applicant files were coded by the principal investigators (see Appendix A). The investigators also coded data from the letters which would have identified the sex of the applicant or recommender (see Appendix B). Control data included: 1) institutional quality, 2) undergraduate and graduate performance level, 3) years of support in graduate school (teaching assistantship, research assistantship, fellowship, traineeship), 4) teaching experience, 5) research productivity, and 6) professional service and consulting experience. (See Appendix A, Applicant Codebook.)

In many cases, the individual indices used for coding purposes (see Appendix A) were combined to form composite measures. The following higher-order variables were developed: Grade Point Average (GPA), Undergraduate Honors, Student Performance, Research Extensivity, Research Output (weighted), Unweighted Research Output, Sole Research Output, Professional Experience. The formulas for these variables were:

1. GPA = Percent B's + 2 (Percent C's).
B's and C's, rather than A's, were used to determine GPA scores because A's, the more normative grades in graduate school, are not as salient indicators of high level performance as B's and particularly C's are of mediocre performance. Since graduate departments vary in both the number of courses they require and in their reliance upon credit-no credit versus letter grading systems, the percentage (rather than frequency) of B's and C's independently in relationship to all other letter grades were coded. C's, as the above formular suggests, were weighted twice as heavily as B's.

2. Undergraduate Honors = 2 (Phi Beta Kappa) + Honors.
This variable represents the combination of all available undergraduate performance indicators with Phi Beta Kappa weighted twice as heavily as the sum of all other undergraduate honors.

3. Student Performance = 2 (Traineeship + Postdoctoral Support) + Undergraduate Honors + 2 (GPA).
Student Performance is the broadest measure of combined graduate and undergraduate performance. Since graduate student performance is more critical in the hiring process, graduate and postgraduate honors and grades are weighted twice as heavily as undergraduate honors.

4. Research Extensivity = Number of Years of Research Assistantship + Number of Years in Full-time Research Positions + Number of Grants.
Research Extensivity constitutes an estimate of research experience rather than output.

5. Research Output = 3 [(Number of Publications) + 2 (Number of Sole Authorship Publications)] + (Number of Professional Presentations) + 1.5 (Sole Authorship Professional Presentations).
Research Output is a composite measure of research productivity with publications weighted more heavily than presentations because they are viewed as far more important and are usually more critically refereed than are presentations. Also, sole authorships are considered more significant and more clearly attributable to the candidate than multiple authorships.

6. Unweighted Research Output = Number of Publications + Number of Presentations.
This variable is simply a measure of research productivity without distinguishing quality attributable to sole authorship or mode of dissemination (publication versus presentation).

7. Sole Research Output = 2 (Number of Sole Publications) + Number of Sole Presentations.
This index considers only work published or presented by the candidate alone and weighs publications twice as heavily as presentations.

8. Professional Experience = Number of Professional Services + Number of Consulting Jobs.
Professional Experience represents all accomplishments in non-research but professionally related activities, e.g., reviewer for a journal.

Letter Data. Appendix C contains the coding scheme for the actual letters. Following each variable title may be found the coding system and, in many cases, instructions and/or examples. The discussion of these variables is divided into two parts, sex-typing of applicant and sex-typing of recommender. Specific hypotheses are stated below. Most are based on the assumption that the direction of the expected differences favors the male applicant.

A. Sex-typing of Applicant.

1. Initial Statement: Active or Passive. This variable (variable 1) refers to the recommender's attitude toward the recommendation itself; i.e., whether the recommender takes pleasure in writing the letter or merely responds to a request to provide it. It is expected that letter-writers will be more likely to exhibit less enthusiasm about female candidates than about male candidates.

2. Length of Letter. Length of Letter (variable 3), the exact word count in the letter, reflects our hypothesis that letters for males will be longer than letters for females. Number of letters for each candidate was also examined (variable 2, Appendex A).

3. Nature of Relationship. Length of Relationship (variable 4) refers to the amount of time that the letter-writer states s/he has known the candidate. We are predicting that recommenders will be more likely to say that they have known male, rather than female, job candidates for a long period of time. Strength of Relationship (variable 5) refers to the presence or absence of statements indicating extensive knowledge of the candidate. We expect that recommenders will be more likely to convey extensive knowledge of male than of female applicants.

4. Status of Recommender. Three variables which relate to attributes of the recommender were coded by the principal investigators and include sex, position, and affiliation of the recommender (doctoral granting institution vs. other affiliations) (see Appendix B). We expect that male candidates will have a higher proportion of letters from male recommenders, higher level (full professor higher) recommenders, and more recommenders from the candidate's doctoral institution.

5. Formality of Address. Formality of address was measured by four separate indices: the form of address in the introductory statement about the candidate, the frequency of references to first name alone, the frequency of references to full name or last name alone, and the frequency of references to full or last name preceded by the polite (e.g., Mr.) or status (e.g., Dr.) titles. In order to control for the

total number of references to the candidate by name -- a measure which is confounded by length of letter, two proportional variables were created: 1) the proportion of references to first name over all references by name and 2) the proportion of titled references over all references by name. The "formality of address" variables (variables 6 to 9) reflect our hypothesis that recommenders will use more formal (and respectful) forms of address when describing male as opposed to female applicants.

6. Causal Attributions. Ability (variable 10) and Effort (variable 11) refer to the causes which the recommender specifies for the applicant's achievements. These causes for success have been found to be differentially attributed to males and females; that is, males are seen as succeeding more on the basis of ability and females more on the basis of effort. We anticipate that the proportion of effort over ability plus effort references will be greater for females than for males. In addition, we are predicting that there will be more references to both ability and effort for males than for females.

7. Sex-typed Labels. Instrumental Terms (variable 12) refers to the number of times masculine (task-oriented) terms occur in the letters; Expressive Terms (variable 13) refers to the frequency of feminine (person-oriented or interpersonal) terms. The lists included in the coding instructions are based on a review of the literature of sex-stereotypes (e.g., Bem, 1974; Broverman et al., 1970; Heilbrun, 1976; and Parker, 1969). The descriptors obtained from the literature have been expanded to include analogous terms which frequently emerge in letters of recommendation but which are not explicitly discussed in the literature on sex-stereotyping. In such cases, the decision to include or exclude a particular term was based on its task or interpersonal orientation. We anticipate that a higher proportion of instrumental terms will appear in letters for male candidates than for female candidates. Additionally, we anticipate that the frequency of masculine references will be higher for males, while that of feminine references will be higher for females.

8. Positive Attributes. The number of different positive attributes (variable 14) refers to the frequency with which recommenders cite different positive traits of the candidate, using only those references to behavior which are implied to be constant or to continue in the future. We are predicting that the frequency for males will be greater than that for females.

We also expect that the presence of negatively-phrased positive statements about the candidate (variable 30) will be found more often in letters written for females than in those written for males because positive attributes for women may be put in a negative or indirect framework.

9. Negative Statements. The presence of a negative statement about the candidate (variable 31) is a critical dimension in evaluating

letters of recommendation. The appearance of a qualification will typically offset an otherwise positive recommendation. We predict that qualifiers (or negative statements) are more likely to be found in letters for females than in letters for males.

10. Emphasis on Research vs. Teaching. We expect that research will be mentioned first or only (variable 15) for males more frequently than will occur for females. This hypothesis is based on the presumed high priority of research potential in considering candidates for academic positions.

The following dimensions of letters which refer to the number of words devoted to different areas of academic competence are also considered here: the number of words devoted to research (variable 16), the number of words devoted to teaching (variable 20), and the number of words devoted to clinical skills and experiences for clinical psychology candidates (variable 24). We are predicting that letters for males will contain more words on each of these topics than will letters for females. The potentially confounding factor of length of letter in counting total number of words is eliminated by using proportional measures with the number of words in each area divided by the total number of words.

We also expect that the number of words on research will be greater than the number of words on teaching in letters for male candidates; female applicants, we suspect, will have a larger number of words devoted to teaching as opposed to research in their letters.

11. Direct Evidence. The number of words of direct evidence presented for research (variable 17), teaching (variable 21), and clinical skills and experience (variable 25) was examined. Evidence is considered to be direct if it is objective (e.g., student evaluations, publications), based on direct observation (e.g., supervision of a teaching or research assistant, peer review or teaching skills), or involves description of duties and experiences (e.g., "...taught both undergraduate and graduate students. ...'s dissertation research is on..."). We assume that letters which provide direct evidence for assertions about candidates create a more favorable impression than do those which contain no such direct evidence. Since the number of words of evidence in a given area of competence is constrained by the total number of words devoted to that area, proportional measures of evidence (relative to total words in the corresponding area) were created. Accordingly, we anticipate that recommendations for males will contain higher proportions of direct evidence in each category than will those for females.

Positive mention of publications or presentations (variable 18), mention of teaching evaluations (variable 23) and presence or absence of description of specific research (variable 55) were examined separately because we believe them to be important elements of direct evidence more likely to appear in letters for males than for females. A combined indicator of direct evidence (All Evidence) considered the presence or absence of any of the above measures of evidence.

12. Comparative Statements. Comparison with Faculty on Research (variable 19), Comparison with Faculty on Teaching (variable 22), Rank in Comparison with Current or Previous students (variable 26), and General Comparative Statements (variable 27) all refer to favorable comparisons of the candidate with others. The presence or absence of any positive comparative statement was examined via a new variable, All Comparisons. We predict that all such comparisons are more likely to occur in letters for males than in those for females.

13. Modifiers. The frequency of highest (variable 28) and high intensity (variable 29) modifiers were individually coded and later combined in a proportional measure: frequency of highest intensity of modifiers over the total number of positive modifiers (Proportion Highest Modifiers). We expect that highest, high, and proportion highest modifiers will occur more commonly in letters for males.

14. Summary Recommendation. The presence or absence of the strongest possible recommendation (e.g., I unqualifiedly recommend...) (variable 39) and whether the recommender explicitly states s/he would welcome the candidate as a colleague (variable 40) are included here. We anticipate that letters of recommendation will favor males on both of these summary dimensions.

15. Presence or Mention of Non-Job Related Qualities. Non-job related qualities refer to personal attributes or information about the candidate which do not directly speak to her or his qualifications or credentials. We expect that mention of gender (variable 33), interrupted career (variable 35), age (variable 34), physical appearance (variable 32), spouse and/or children (variable 37), non-job related qualities (variable 36), and discussion of marital status (variable 38) will all be cited more often in letters for females than in those for males. The mere presence of a marital title for females was coded by the investigators (variable 5, Appendix B).

16. Specific Terms and Phrases. A number of key terms and phrases were singled out because they were thought to occur with sufficient frequency in letters of recommendation to be separately analyzed. Some of these terms would be masked if just considered in the count of positive attributes. Most were derived from the sex-role literature and some are of particular importance in evaluating the performance potential of academic candidates (e.g., well trained, mature, popular with students). The following terms are expected to occur more often in letters for males: "independent," "creative," "broad background," "well trained," "thorough," "analytic," "mature," and "well organized." The following terms were expected to occur more frequently in reference to females: "bright" and "conscientious." No expectations are given for "popular with students."

B. Sex-typing of Recommenders.

A subsidiary concern of this project is the analysis of patterns associated with the sex of the speaker (recommender) as opposed to that

of the individual spoken about (job applicant): see Bodine (1975) for this distinction. Many of the variables discussed above can be examined from the perspective of the writing style of the recommender.

In view of the nature of our sample, few hypotheses are offered using sex of recommender as the major independent variable. Only the presence of Negatively-phrased Positive Statements and the terms "So" and "Very" are expected to occur more frequently in letters written by females than in letters written by males; we also expect the mean length of sentences written by males to be longer than those written by females. For the most part, then, sex of recommender will be used as a control variable to interpret the relationship between sex of applicant and the dependent variables.

Results

The letter, and not the applicant, was used as the research case for all analyses. Because a large proportion of the findings were modified by academic area (Clinical, Developmental, Social and Experimental, and Sociology), the area applicant pools were too small to permit using the applicant as the unit of analysis.

Each dependent variable was examined in relationship to sex of applicant. In addition, department, academic area, year of recruitment, institutional quality, and sex of recommender were separately used as control variables. Two major statistical techniques were used: Chi-squares and analysis of variance, both single and factorial. Chi-squares were used for nominal data and when the data were not normally distributed. In several cases, presence-absence scoring was employed in addition to analysis based on frequency. Intercorrelations (Pearson's *r*) are presented when appropriate. Multiple regression using sex of applicant in combination with major control variables from the applicant files, many of which were composite measures, was utilized to assess the predictive value of sex of applicant. Because area effects were pervasive, the regressions were run separately for each of the four areas.

Findings significant at the .05 level or beyond are reported. Marginal results are presented as they clarify major findings. Many results reported at the .0001 level are actually significant beyond that point but were rounded off. All analyses were done using the Statistic Package for the Social Sciences programs.

With the exception of the multiple regression, the results are organized by major dependent variables as outlined in the methods section.

Description of the Sample and Control Data

Since the letter was used as the unit of analysis, the following characteristics of the sample refer to letters, not candidates. Thus, data from the file are multipled by the number of letters in that file. (The average number of letters per candidate was 4.3.) Although equal numbers of male and female candidates were sampled, 522 of the letters were written for females and 527 for males. Sixty-six or 6.3% of the letters were written for minority candidates.[3] Of the 1049 letters in the sample, 64.5% were written for candidates expecting the Ph.D. in the year sampled.

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[3]Since a number of these letters were written for foreign students, and not racial minorities, and the total was small in any case, no further analyses involving race were done.

Sex of recommender showed a primarily male sponsorship; 171 (16.3%) of the recommenders were female and 842 (80.3%) were male. Female recommenders wrote proportionately more letters for females and male recommenders for male candidates. Twenty-two percent (111) of the female candidates had letters written by a female recommender compared to 11.8% (60) of the male candidates ($\underline{x}^2 = 17.71$, $\underline{p} = .0001$). As might be expected, male recommenders in general had higher positions than female recommenders ($\underline{x}^2 = 37.32$, $\underline{p} = .0001$) but only in Sociology did male candidates have recommenders with higher academic positions, i.e., full professors and deans ($\underline{x}^2 = 6.66$, $\underline{p} = .04$, 65.7 versus 60.2%).

No sex differences between letters for female versus male candidates were found in quality of the candidate's doctoral institution,[4] year of doctorate, or level of position sought. It is interesting to note that in higher quality institutions a greater percent of male candidates have personally written letters, as opposed to file letters, while in lower quality institutions, these findings are reversed. (see Table 4).

Table 4
Percent of Personally Written (Nonfile) Letters for Female and Male Candidates at Two Levels of Institutional Quality

Institutional Quality	Sex of Applicant		$\underline{x}^2$	$\underline{p}$
	Female	Male		
Higher	61.7% (227)	80.1% (216)	17.23	.0001
Lower	67.0% (294)	49.2% (311)	18.94	.0001

Sex differences obtained from the files, including the vita, graduate school transcript, and introductory letter, showed an interesting and consistent pattern. A number of indicators favored female candidates. Females were more likely to have received grants ($\underline{x}^2 = 17.87$, $\underline{p} = .0001$: females--33.7%, males--21.8%), especially in 1977-1978 (see Table 5) and especially in lower quality institutions (see Table 6).

[4]Although effects of institutional quality were found on Percent "B's," GPA, Student Performance, Undergraduate Honors, Professional Experience, and Sole Research Output, no interactions were found with sex of applicant.

Table 5
Percent of Males and Females Receiving Grants
in 1975-1976 and 1977-1978

Year	Sex of Applicant Males	Females	x^2	p
1975-1976	22.6% (361)	29.3% (357)	3.79	.05
1977-1978	9% (166)	43% (165)	19.52	.0001

Table 6
Percent of Males Versus Females Receiving Grants
in Higher and Lower Quality Institutions

Institutional Quality	Sex of Applicant Males	Females	x^2	p
Higher Quality	28.6 (216)	37.0 (227)	3.11	.077
Lower Quality	17.0 (311)	31.1 (294)	15.56	.0001

Females had a lower percent of "B's" in their graduate school grades ($F = 15.05$, $p = .0003$). A combined index, GPA, showed that females had higher grades in graduate school ($F = 7.57$, $p = .006$). They also had more years of fellowship support while in graduate school ($F = 4.80$, $p = .03$). Their numbers of undergraduate honors were higher ($x^2 = 41.38$, $p = .0001$: two or more honors, females--41.6%, males--23.7%), and even more significantly, a higher proportion of females were Phi Beta Kappa ($x^2 = 28.65$, $p = .0001$: females--15.9% versus males--5.5%). The sex difference in Phi Beta Kappa was stronger in higher quality institutions ($x^2 = 26.65$, $p = .0001$, females--27.8%, males--8.3%) than in lower quality institutions ($x^2 = 2.68$, $p = .10$, females--6.8%, males--3.5%). A combined measure of Undergraduate Honors significantly favored females ($F = 38.04$, $p = .0001$). In general, then, the level of performance of females in graduate school, and undergraduate school as well, was higher than that of males. A combined index, Student Performance, was significantly higher for females ($F = 19.28$, $p = .0001$) than for males.

Males, on the other hand, were higher on indicators of research outcome, publications and presentations. On a combined measure of Research Output, with publications weighted more heavily than presentations, and sole authorship more heavily weighted than multiple authorship, males scored higher ($F = 17.89$, $p = .0001$), as they did on just the total number of publications and presentations (Unweighted Research Output, $F = 17.10$, $p = .0002$). The publication edge on Unweighted Research Output was greater for males in 1975-1976 than in 1977-1978 although males published significantly more in both years. Also, males exceeded females on a combined measure of sole publications and sole presentations (Sole Research Output), with sole publications weighted

twice as heavily as sole presentations ($F = 9.80$, $p = .002$). Table 7 shows sex differences in research output using the individual indices with a Chi-square analysis, rather than one based on ordinal or interval measures.

Table 7
Sex Differences in Percentages at Different Levels of Research Output

Index	Level Highest	Moderate	x^2	p
Publication Number	(3+)	(2)	48.59	.0001
Females	16.1%	27.1%		
Males	31.1%	14.1%		
Sole Publications	(2+)	(1)	12.34	.002
Females	9.0%	22.6%		
Males	15.3%	17.2%		
Presentation Number	(3+)	(2)	5.48	.14
Females	24.4%	16.3%		
Males	30.7%	16.0%		
Sole Presentations	(3+)	(2)	2.76	.43
Females	13.3%	11.7%		
Males	16.6%	12.2%		

Although sex differences in publications, using a Chi-square analysis, were significant, with males producing three or more publications more frequently than females and females producing two publications more often than males, no differences were found in the area of presentations. It is important to note that the differences in output cannot be accounted for by either quality of institution or differences in when the candidates received their Ph.D.'s because no sex differences were found on these critical moderators of productivity. Table 8 shows the relationship of research output variables by sex of applicant within academic area.

Table 8
Research Output by Sex of Applicant by Academic Area and Department: Percentages of Applicants in Each Category

	Academic Area and Department									
	Clinical		Developmental		Experimental-Social		Sociology		Psychology	
Publications	F	M	F	M	F	M	F	M	F	M
0	33.3	23.3	21.4	11.2	9.5	23.8	46.8	51.6	19.7	20.0
1	35.8	26.7	26.5	12.4	27.0	21.4	21.3	23.3	29.2	20.3
2	11.1	20.0	19.4	21.3	55.6	19.8	19.9	5.5	32.1	20.3
3+	19.8	30.0	32.7	55.1	7.9	34.9	12.0	19.6	19.0	39.3
n	(81)	(90)	(98)	(89)	(126)	(126)	(216)	(219)	(305)	(305)
x^2	6.58		13.15		51.24		22.57		34.53	
p	.09		.004		.0001		.0001		.0001	
Sole Publications										
0	70.4	78.9	87.8	65.2	51.6	60.3	67.5	66.0	68.2	67.2
1	24.7	3.3	10.2	27.0	33.3	23.0	21.3	15.5	23.6	18.4
2+	4.9	17.8	2.0	7.9	15.1	16.7	10.2	16.4	8.2	14.4
n	(81)	(90)	(98)	(89)	(126)	(126)	(216)	(219)	(305)	(305)
x^2	29.88		13.58		3.34		5.16		7.25	
p	.0001		.001		.10		.08		.03	

The findings for publications show that in all areas men published more at the highest levels. In some areas, notably Experimental-Social and Sociology, females published more at the moderate (2 publications) level. With the exception of Experimental-Social Psychology, males published as sole author at the highest level (2+) more frequently. Data at the moderate level (1) are mixed; in Clinical and Experimental-Social Psychology, and in Sociology females published more sole-authored work but in Developmental Psychology males published more sole-authored work. Significant sex differences in number of publications and sole publications occurred in both higher and lower quality institutions.

Analysis of the number of presentations shows that a significant Chi-square was found only in Developmental Psychology ($x^2 = 10.04$, $p = .02$), showing that males presented more than females at the highest level (43.8% of the males and 25.5% of the females), but the findings were reversed at the intermediate level (females--24.5%, males--18.0%). Trends were found in the other areas of psychology for more males to make 3+ presentations than females. For sole presentations, again, only Developmental Psychology showed a significant effect. For the first time, more females gave sole presentations at the 3+ level than males (14.3 versus 4.5%) and more males presented alone at the moderate level (41.0 versus 18.0%). Sex differences in number of presentations occurred only in higher quality institutions ($x^2 = 11.63$, $p = .008$; 3+ publications, males--33.8%, females--20.3%).

Besides research output, males, more than females, had extensive experience as Teaching Assistants (TA) (x^2 = 8.93, p = .002, two or more years: males--60.4%, females--50.9%), had more consulting jobs (x^2 = 22.29, p = .0001: 38.3 versus 24.4%), more postdoctorates (x^2 = 7.07, p = .007: 5.7 versus 2.3%), and more professional services such as reviewers for manuscripts (F = 5.70, p = .02). A combined measure of professional and consulting experiences, called Professional Experience, was significantly higher for males (F = 5.67, p = .02). No difference in Research Assistantships (RA's) was found (two or more years: males--41.2%, females--38.5%). Females from lower quality institutions were more likely to have held fulltime research jobs (x^2 = 11.77, p = .003, females--21.2%, males--12.2%). Sex differences in both TA's and consulting jobs were specified by quality of institution. Consulting differences were found more in lower quality institutions (see Table 9) and differences in TA's were found more in higher quality institutions (see Table 10). Although males had more TA's in higher level institutions than did females, females did <u>not</u> have a greater proportion of alternative support, such as RA's and traineeships (or fellowships).

Table 9
Presence of Consulting Jobs by Sex of Applicant and Institutional Quality

Quality of Institution	Sex of Applicant Female	Male	x^2	p
Higher Quality	29.1% (227)	38.0% (216)	3.57	.059
Lower Quality	20.8% (294)	38.5% (311)	21.11	.0001

Table 10
Sex Differences in TA's (2+ years) in Higher and Lower Quality Institutions

Quality of Institution	Sex of Applicant Female	Male	x^2	p
Higher Quality	48.9% (227)	64.8% (216)	10.17	.001
Lower Quality	57.6% (294)	52.4% (311)	1.30	.24

Our measure of teaching experience showed consistent but complex differences. Males clustered at the highest level of teaching experience, having held more fulltime teaching jobs (42.1 versus 34.7%). The only exception here is Developmental Psychology, the most traditionally female specialty, where females had more fulltime teaching positions (25 versus 9%). Also, the difference in teaching positions was stronger in 1975-1976 than in 1977-1978 (x^2 for 1975-1976 = 11.42, p = .02; x^2 for 1977-1978 = ns).

Separate analyses for Clinical candidates showed that females had more extensive clinical experience (over 5 distinct experiences: females --32.7 versus males--25%); males had more moderate clinical experience (3-4 distinct experiences: males--52% versus females--21.8%); and females were more likely than males to have the baseline 1-2 experiences (females--44.5 versus males--22%: $\underline{x}^2 = 22.14$, $\underline{p} = .0001$). This measure included the clinical internships. Male Clinical candidates had more recommendations from their doctoral training institution (69 versus 59.3%) which, along with the female's more extensive clinical training, may account for the finding (to be presented later) that female Clinical candidates had a greater proportion of their letters dealing with their clinical skills than did male Clinical candidates (see section on Clinical Skills).

Correlations Among Control Variables. Traineeships (and fellowships) seem a significant variable in evaluating a candidate: candidates who have had traineeships or fellowships are more likely to have achieved Phi Beta Kappa (.19), come from a more highly reputed institution (.28), and have a higher overall Student Performance score (.65). Additionally, although the percent of "C's" in graduate school is uncorrelated (-.06) with Phi Beta Kappa, the percent of "B's" correlates -.20 ($\underline{p} = .0001$) with Phi Beta Kappa; students who have made Phi Beta Kappa in undergraduate school are less likely to earn "B's" in graduate school.

Year of doctorate correlates significantly with a number of variables. The longer a candidate is out of graduate school, the more years of research (.29), publications (.33), sole publications (.44), presentations (.44), sole presentations (.44), professional services (.27), consulting jobs (.23), teaching experience (.48), and research output in general (.50). Again, there were no sex differences in year of doctorate.

Initial Statement

Although 77% of the candidates were introduced with an active statement such as "I am pleased to recommend...," Chi-square analyses of Initial Statement did not show any effects of either sex of applicant or sex of recommender. When the relationship between sex of applicant and initial statement was controlled by sex of recommender, year of recruitment, and academic area, the results were not significant. Initial Statement was not moderately or highly correlated with any other letter (or control) variable, with the largest correlation between Initial Statement and other variables being less than $\underline{r} = .11$.

Length of Letter and Number of Letters

In evaluating sex bias in letters of recommendation, length of letter is an obvious indicator to examine. No difference was found in the length of letter for female and male candidates. The mean length of

letter was 298.77 words, with a standard deviation of 177.34, showing a rather large variation. Using analyses of variance, area and department effects were significant, but year of recruitment and institutional quality were not. The average letter length for each area was as follows: Clinical: 293.60, Developmental: 364.01, Experimental-Social: 321.42, and Sociology: 269.01 ($F = 11.73$, $p = .001$). The departmental effect ($F = 22.68$, $p = .001$) is clearly that Sociologists wrote shorter letters than Psychologists. It is interesting to note that length of letter correlated significantly with every variable for which frequencies are counted as data, such as number of references to ability and effort, feminine terms, masculine terms, number of positive attributes, words devoted to teaching, research, and clinical skills, words devoted to evidence, frequency of both highest and moderate intensity modifiers. Also, many variables (including such positive and negative aspects as the presence of a negative statement, positive mention of publications, positive comparisons with others, mention of personal life, presence of a negatively phrased positive statement) are more likely to be present in a letter when that letter is longer. Fortunately, the finding of no relationship between length of letter and sex of applicant adds confidence to sex differences when they are found on the variables correlated with length of letter. Additionally, many of the frequency variables were transformed into proportional variables and thus corrected for either length of letter or other more appropriate frequency baselines.

Concerning number of letters for the candidates, the mean number of letters for candidates is 4.32 and the standard deviation is 1.85 (although our institution only requires three letters of recommendations). Although there are no sex of applicant main effects, there are significant area and institutional quality interactions with sex of applicant. A main effect of area was also found ($F = 3.41$, $p = .02$) with Clinical candidates' files containing more letters than the other three areas. The significant interaction between sex of applicant and area ($F = 3.13$, $p = .02$) is seen in Table 11.

Table 11
Mean Number of Letters Per Candidate
by Sex of Applicant and Area

	Sex of Candidate		p
Area	Female	Male	
Clinical	4.46	4.87	ns
Developmental	4.43	3.74	.01
Experimental-Social	4.35	4.05	ns
Sociology	4.29	4.38	ns

Developmental Psychology had more letters written for females than males. The significant interaction between sex of applicant and institutional quality ($F = 17.54$, $p = .001$) shows that in higher quality institutions more letters were written for females (4.54 versus 3.79, $t = 4.07$, $p = .001$) and in lower quality institutions more letters were written for males (4.61 versus 4.22, $t = 2.50$, p .01).

Nature of Relationship

Three percent of recommenders indicated that they had known the candidate less than a year, 5.3% for a year, 10.1% for two years, 25.9% for three to five years, 11.2% for more than five years, and in 44% of the letters, there was no mention of the length of the relationship between the writer and the applicant. In 69.8% of the recommendations, the letter-writer stated or implied that she or he had extensive knowledge of the candidate (e.g., had been the student's dissertation advisor or had known the student in many capacities such as in several courses and/or as a teaching assistant).

Correlational analysis showed these variables to be unrelated to others in the study. Even the correlations with length of letter were fairly low: $r = .09$ for length of relationship and $r = .22$ for extensivity of knowledge. Moreover, the correlation between length of relationship and extensivity of knowledge proved low, .233; yet this was the highest association between length of relationship and any other variable. The highest r found for extensivity of knowledge was with the proportion of words of evidence on research and was .343. Thus, about 12% of the variance in extensivity of knowledge can be explained by evidence on research, suggesting that information about a graduate student's research is more likely to lead a recommender to state or imply that she or he knows the student well.

Chi-square analysis failed to uncover patterns for either of these variables, whether broken down by sex of the applicant itself or additionally controlled for sex of recommender, year of recruitment, academic area, or institutional quality.

Status and Affiliation of Recommender

Only 16.3% of letters had female recommenders. Seventy-four percent of all recommenders were affiliated with the candidate's doctoral institution, while 20.8% were associated with major outside jobs (e.g., were postdoctoral or clinical supervisors or peers of those candidates who already had teaching positions), and 5.1% were connected with predoctoral institutions or held peripheral jobs (e.g., had been the candidate's music teacher). Thirteen percent of all recommenders held positions equivalent to lecturer or assistant professor, 21.6% to that of associate professor, and 59.4% to that of either a full professor or a higher-level position (e.g., dean or university vice-president). All three variables were unrelated to others in the study.

Tabular analysis indicates that women are neither more likely to receive recommendations from lower-level individuals nor from individuals located outside of the doctoral institution than are men. They are, however, more likely to obtain letters from female recommenders than are their male counterparts (21.9 to 11.8%, $x^2 = 17.71$, $p = .0001$). Controlling for year of recruitment did not produce any modifications of these patterns.

When the affiliation of the recommender was examined, only male and female Clinicians differed in their likelihood of having letter-writers from their doctoral institution ($\underline{x}^2 = 6.98$, $\underline{p} = .03$). Males were significantly more likely to have recommenders connected with the doctoral university (69 versus 59.3% for female candidates) while females had far more letters from recommenders at major outside jobs (39.5 versus 24.1%). Men, however, also received more recommendations from peripheral sources, i.e., outside music teachers and student teacher supervisors in the public school system (6.9 as opposed to 1.2%).

When academic area was controlled, no significant relationship between sex of applicant and recommender's position emerged for Clinicians or Developmental Psychologists, but a marginal trend ($\underline{x}^2 = 4.90$, $\underline{p} = .086$) was found for female applicants to have higher-level recommenders among Experimental-Social Psychologists. By contrast, male Sociologists were significantly more likely than were female Sociologists ($\underline{x}^2 = 6.66$, $\underline{p} = .036$) to have highly-placed letter-writers. Sample size accounts for the difference in significance level.

Table 12
Position of Recommender by Sex of Applicant and Academic Area

Position of Recommender	Experimental-Social Psychology		Sociology	
	Female	Male	Female	Male
Lecturer or Assistant Professor	16.3	14.5	19.9	10.8
Associate Professor	17.1	29.1	19.9	23.5
Full Professor or Higher	66.7	56.4	60.2	65.7
	100% (123)	100% (117)	100% (206)	100% (204)

When institutional quality was introduced as a control variable, the relationship between sex of applicant and sex of recommender remained as indicated above: in both high ($\underline{x}^2 = 13.83$, $\underline{p} = .0002$) and low-level ($\underline{x}^2 = 5.50$, $\underline{p} = .019$) universities, female candidates received recommendations more often from female letter-writers and less frequently from male ones than did male candidates; however, the relationship was stronger in higher level insitutions (see Table 13).

the candidate was initially introduced to the reader;[5] this informal type of address had an overall mean frequency in the letters of 2.3 and a standard deviation of 2.74. By contrast, full or last names were used in 48.9% of the initial statements and titled references (Dr., Ms., Professor) in 48.6%. The corresponding means and standard deviations for full/last name and titled references were .33, .91 and 1.26, 1.95, respectively. Our proportional measures showed similar distributions: the mean proportion of first to all name references was .49 and its standard deviation was .46. The proportion of titled to other name references had a mean of .35 and a standard deviation of .44.

Correlational analysis showed that the frequency of first name references was only somewhat related to length of letter (.23), the number of positive attributes (.20), and the number of words devoted to research (.20), and still less well related to the other dependent variables. The frequency of full/last name references and titled references performed even more poorly in correlational analysis.

Chi-square analysis revealed significant differences in introductory references according to the sex of the job applicant ($\chi^2 = 7.38$, $p = .025$) with males more frequently referred to by full or last name and females more commonly referred to by title (see Table 15).

Table 15
Initial Form of Address by Sex of Applicant

	Sex of Applicant	
Form of Address	Female	Male
First Name	2.3	2.3
Full/Last Name	45.0	53.3
Titled Name	52.7	44.4
	100%	100%
	(522)	(527)

Table 15 indicates that females were introduced more formally than were males.

As Table 16 reveals, women candidates were also referred to with greater formality than that used with their male counterparts when the letter as a whole was examined for presence or absence of three separate measures: first name, full/last name, or titled designations. First name and full/last name references were more commonly found in recommendations for males, while titled ones were more likely to occur in those for females. All three forms of address were significantly related to sex of applicant.

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[5]This type of introduction was possible, of course, only if the applicant's full name or titled name was present at the top of the recommendation, as in the form "Re: Jane Smith."

Table 16
Percentage of Letters with First Name, Full/Last Name, Titled References by Sex of Applicant

Form of Address	Sex of Applicant Female	Male	x^2	p
	% (522)	% (527)		
First Name References	51.7	60.3	7.56	.006
Full/Last Name References	51.5	62.4	10.58	.001
Titled References	48.5	37.6	12.26	.0005

Sex of recommender was not found to be related to the "formality of address" variables. When introduced as a control variable, however, the sex of the recommender specified the original relationship between initial form of address and sex of applicant: male recommenders were significantly more likely to refer to female candidates by using titles, while full or last name was the most common designation for male applicants ($x^2 = 6.29$, $p = .043$). While the patterning was similar for the partial for female recommenders, the small marginal frequencies prevented the relationship between initial form of address and sex of applicant from emerging as significant (see Table 17).

Table 17
Initial Form of Address by Sex of Applicant and Sex of Recommender

	Sex of Recommender			
	Female		Male	
	Sex of Applicant		Sex of Applicant	
Form of Address	Female	Male	Female	Male
First Name	3.6	3.3	1.8	1.8
Full/Last Name	45.9	51.7	45.6	54.1
Titled Name	50.5	45.0	52.7	44.1
	100% (111)	100% (60)	100% (395)	100% (447)

The patterns for the three separate measures of presence or absence of first name, full or last name, and titled references were similar. Both male and female recommenders referred more frequently to male than to female applicants by their first name, though--because of the small number of female letter-writers--only the partial for male recommenders produced a significant result (61.5 versus 54.2%, $x^2 = 4.35$, $p = .037$). Male and female letter-writers also more commonly used full or last name references with male than with female applicants. For male recommenders, the pattern was significant at the .008 level ($x^2 = 6.93$), and full or last name references occurred in 24.6% of male letters as compared with 17% of female ones. For female recommenders, the pattern was marginal ($x^2 = 3.54$, $p = .06$), with male letters containing 21.7% of such references while female ones had only 9.9%. When sex of recommender was introduced into the relationship between sex of applicant and presence

of titled references, it appeared that letter-writers of both sexes relied more heavily on titled references for females. Again, because of the small n for female recommenders, only the pattern for male letter-writers emerged as significant ($x^2 = 8.84$, $p = .003$): forty-seven percent of letters for women included titled references while 36% of those for men did.

Year of recruitment was also introduced into the relationship between the "formality of address" variables and sex of applicant in order to tease out changes over time. When the candidate was initially introduced to the reader, a marginal trend was found for the use of titled references for females and full or last names for males ($x^2 = 5.25$, $p = .072$ for 1975-1976; and $x^2 = 5.46$, $p = .065$ for 1977-1978) even when year of recruitment was held constant. Sex differences are more pronounced in 1975-1976 than in 1977-1978 for Full or Last Name and Titled References; the reverse patterns holds for First Name References. What is most significant in Table 18 is the greater use of informality (First Name References) when describing male as opposed to female candidates, a fact that increased the gap in informality between the sexes. In fact, the relationship between sex of applicant and presence-absence of First Name References becomes more significant in 1977-1978 despite the decrease in sample size. The overall percentage of letters containing first name and full or last name references increased from 1975-1976 to 1977-1978 (from 54 to 60% and 18 to 24% respectively), while that for titled references remained substantially the same (about 42%).[6]

Table 18
Percentage of Letters with First Name, Full/Last Name, Titled References by Sex of Applicant and Year of Recruitment

	1975-1976		1977 1978		
	Female % (357)	Male % (361)	Female % (165)	Male % (166)	
First Name References	50.4	57.6	54.5	66.3	1976-1977: $x^2 = 3.46$, $p = .063$ 1978-1979: $x^2 = 4.28$, $p = .039$
Full/Last Name References	13.2	22.7	21.2	26.5	1976-1977: $x^2 = 10.47$, $p = .001$ 1978-1979: $x^2 = 1.00$, $p = .317$
Titled References	48.7	38.0	47.9	36.7	1976-1977: $x^2 = 8.08$, $p = .004$ 1978-1979: $x^2 = 3.76$, $p = .053$

[6]This pattern may reflect a trend toward increasing informality (at least in name references) in academic letters of recommendation.

Among the most interesting findings with regard to the "formality of address" variables were those which occurred when academic area was used as a control variable. Academic area served as a specifier: in Sociology, female applicants were more commonly introduced with titles than were their male counterparts (55.8 versus 44.6%, $\underline{x}^2 = 6.64$, $\underline{p} = .036$). A similar but marginal trend (45.9 versus 31.5%, $\underline{x}^2 = 4.86$, $\underline{p} = .088$) occurred in Developmental Psychology. No sex differences were found for either Clinical or Experimental-Social Psychology. On the three distinct presence-absence measures, the following patterns emerged: (see Table 19): First Name References were significantly more likely to be used in discussing male as opposed to female candidates. In Clinical Psychology, by contrast, female job applicants were more frequently designated by their first names than were male candidates (59.3 versus 51.1%), though the trend was not found to be significant. Sociology recommenders were also more likely to use Full/Last Name References with males and Titled References with females. The same pattern occurs in Experimental-Social Psychology, but only Full/Last Name References reaches significance. It is also interesting that no difference was found in the percentage of letters containing titled references for Clinical females as opposed to Clinical males (44.4% for both). This tendency toward the greater use of informal designations among Clinical females likely accounts for Psychology-Sociology differences. In general, Psychology used more informality of address than did Sociology: Sixty-three percent of Psychology recommendations as opposed to 46.5% of Sociology ones used first names; 16.9% as opposed to 23.9% employed full/last names; and 39.5% as opposed to 47.8% relied on titles (see Table 19 page 33).

When institutional quality was held constant, no relationship between sex of applicant and the introduction of the applicant emerged for highly-rated institutions. A marginal trend ($\underline{x}^2 = 4.92$, $\underline{p} = .06$) for recommenders at low-prestige universities to introduce female as opposed to male candidates more commonly by titled references (54.8 versus 46%) did appear, however. Institutional quality was similarly used as a control to investigate the relationship between sex of applicant and the presence or absence of our three different name indicators: first name, full/last name, and titled references. As Table 20 indicates, recommenders for candidates from high-level schools more commonly referred to males by first name ($\underline{x}^2 = 6.84$, $\underline{p} = .009$) or by full or last name ($\underline{x}^2 = 9.43$, $\underline{p} = .002$) than they do females. By contrast, a trend ($\underline{x}^2 = 2.89$, $\underline{p} = .089$) was found for letter-writers for candidates from prestigious institutions to refer to females more often in these letters by title. Though less prestigious universities revealed the same patterning as their more highly respected counterparts, only the partial for titled references reached significance ($\underline{x}^2 = 9.46$, $\underline{p} = .002$). These results suggest that sex differences in higher-level schools derive from greater informality in reference to males whereas those in less respected schools stem from the greater formality used with females.

Table 19
Percentage of Letters with First Name, Full/Last Name, Titled References by Sex of Applicant and Academic Area

	Academic Area															
	Clinical				Developmental				Experimental-Social				Sociology			
	F % (81)	M % (99)	x^2	p	F % (98)	M % (89)	x^2	p	F % (126)	M % (126)	x^2	p	F % (217)	M % (222)	x^2	p
First Name References	59.3	51.1	.84	.36	65.3	83.1	6.78	.009	55.6	65.1	2.00	.157	40.6	52.3	5.58	.018
Full/Last Name References	9.9	16.7	1.16	.282	22.4	23.6	.0001	.99	8.7	20.6	6.21	.013	18.9	28.8	5.42	.02
Titled References	44.4	44.4	.024	.878	38.8	20.3	1.12	.290	42.9	36.5	.812	.367	57.6	38.3	15.64	.0001

Table 20
Percentage of Letters with First Name, Full/Last Name, Titled References by Sex of Applicant and Institutional Quality

	Institutional Quality			
	High		Low	
	Sex of Applicant		Sex of Applicant	
	Female % (227)	Male % (216)	Female % (294)	Male % (311)
First Name References	50.7	63.4	52.7	58.2
Full/Last Name References	15.0	27.3	16.3	21.5
Titled References	44.5	36.1	51.4	38.6

Analysis of variance for the proportion of references to first name over all other name references revealed a main effect for sex of applicant ($F = 7.30$, $p = .007$, mean for females = .45, mean for males = .52) with male letters containing a higher proportion of first name references than female letters, and a main effect for academic area ($F = 15.65$, $p = .001$) which is modified by an interaction of sex of applicant and academic area ($F = 3.28$, $p = .02$). Clinical males had a lower proportion of first name references while males in the other three academic areas had a higher proportion of such references than did their female counterparts. Analysis of variance for year of recruitment and institutional quality showed no main effects or two-way interactions with sex of applicant.

For the proportion of titled to other references, a main effect was found for sex of applicant ($F = 17.76$, $p = .001$, mean for females = .41, mean for males = .29) with females receiving a higher proportion of titled references than did their male colleagues. A main effect for academic area ($F = 6.00$, $p = .001$) also emerged and was modified by a marginal interaction of sex of applicant and academic area ($F = 2.27$, $p = .078$). Females received a higher proportion of titled references than did males in all areas except Clinical. Again, year of recruitment and institutional quality showed neither main effects nor interactions with sex of applicant.

In summary, female candidates are introduced more formally than are their male counterparts and, except in Clinical Psychology, are referred to more formally (by title rather than first or full/last name) in letters of recommendation. Male recommenders, Sociologists, and those in lower-level institutions are most likely to address women applicants with greater formality than that used with men. Trend data suggests a decrease in sex differences based on formality and an increase in sex differences in the reliance on informality. Higher-level institutions are especially likely to show sex differences in informality.

Causal Attributions: Ability and Effort

Words indicating Ability and Effort were analyzed using both Chi-squares, with presence-absence scoring, and analyses of variance on the frequency of words indicating Ability and Effort. Overall, the mean number of words indicating Ability in a letter was 1.99 and the standard deviation was 1.87. Seventy-nine percent of the letters had at least one reference to Ability. Using a Chi-square analysis, words indicating Ability were not more likely to be present in male than female letters. Department, area, year of recruitment, and sex of recommender did not produce a relationship between sex of applicant and words indicating Ability.

Analysis of variance showed a marginal main effect for sex of applicant ($F = 2.97$, $p = .08$; females--2.09, males--1.89) on number of Ability words with a trend for more Ability terms to be used in females' letters, and a main effect for academic area ($F = 2.58$, $p = .05$) with Developmental Psychology letters showing a higher frequency of Ability words than the other three areas (2.33 versus 1.99, 1.90, and 1.90). No main effects of or interactions with year of recruitment or institutional quality were found.

For Effort (mean = 1.44, s = 1.45), Chi-square analysis of the effects of sex of applicant showed a tendency ($\chi^2 = 3.59$, $p = .058$) for more female letters to contain references to Effort (71.6% versus 66.0%). Sex of recommender showed no significant effects. Year of recruitment showed that in the 1975-1976 year more letters for females contained references to Effort ($\chi^2 = 4.92$, $p = .03$, 72% for females and 64% for males). Also, academic area as a control showed a marginally significant difference in percents only in the Clinical area ($\chi^2 = 2.97$, $p = .08$) with more female letters containing a reference to Effort (71.6 versus 57.8%).

Analysis of variance showed no effects of sex of applicant or sex of applicant interactions with other variables on frequency of Effort terms. These findings weakly support a tendency for females' letters to refer more frequently to Ability and Effort than do males' letters. The sex difference in Effort is significant only in 1975-1976.

Both Ability and Effort are significantly correlated with those variables that are based on frequency rather than presence-absence; thus, the correlations are more an artifact of length of letter than substantive in nature (e.g., r for Ability and length of letter = .37, $p = .001$, r for Effort and length of letter = .33, $p = .001$). The correlation between Ability and Effort was .28.

Sex-Typed Labels: Masculine and Feminine Terms

The mean number of Masculine (or Instrumental) Terms used in each letter was 4.87 and the standard deviation was 3.58. Chi-square analyses of the presence-absence of Instrumental words showed no effects of sex

of applicant or sex of recommender. Breakdowns of sex of applicant by academic area and year of recruitment showed no effects.

For the analyses of variance of frequency of Masculine words, only academic area showed an effect ($F = 2.90$, $p = .03$) with Developmental Psychology (5.39) higher than both Clinical (5.01) and Social and Experimental (5.00) Psychology, and the lowest being Sociology (4.52) ($F = 2.28$, $p = .007$). No sex of applicant effects or interactions with sex of applicant were found for the corrected measure, proportion of masculine words (relative to feminine words).

The mean number of Feminine (or Interpersonal) words was smaller than the mean number of Masculine words (mean = 1.64, s = 1.80). Using a Chi-square analysis for presence-absence of Feminine words, no effects of sex of applicant were found. A specification of sex of applicant by sex of recommender showed no effects of sex of applicant by either male or female recommenders. Within academic areas, Clinical Psychology showed a significant effect of sex of applicant ($x^2 = 9.91$, $p = .002$); 84% of the letters written for female Clinical candidates used at least one feminine word compared to 61% of those written for Clinical males. An opposite trend occurred in the Experimental-Social area with 71% of the male letters containing feminine words versus 60% of the letters written for females ($x^2 = 2.53$, $p = .11$).

Analyses of variance of the number of Feminine words showed a marginal main effect for sex of applicant ($F = 10.49$, $p = .07$) with female candidates tending to have more feminine descriptors in their letters than male candidates (1.74 versus 1.54) and a main effect of department ($F = 15.40$, $p = .001$) with letters in Psychology having more Feminine words than in Sociology.

In an analysis of variance using sex of applicant and academic area as the independent variables, along with the marginal main effect for sex of applicant, a main effect for area ($F = 9.65$, $p = .001$) and a significant interaction between sex of applicant and area was found ($F = 4.44$, $p = .005$). Table 21 shows the interaction.

Table 21
Mean Number of Feminine Words

Area	Sex of Applicant		p
	Female	Male	
Clinical	2.64	1.61	.01
Developmental	2.14	1.79	ns
Experimental-Social	1.45	1.58	ns
Sociology	1.38	1.37	ns

Simple effects tests show that only in Clinical was the sex difference significant.

A significant interaction of sex of applicant and institutional quality was found ($F = 4.64$, $p = .029$) with letters for candidates from lower-reputed institutions containing less feminine words for males than for females (see Table 22).

Table 22
Mean Number of Feminine Words

	Sex of Applicant	
Institutional Quality	Female	Male
Higher	1.67	1.75
Lower	1.78	1.38

As with Ability and Effort, Masculine and Feminine words correlated positively with other measures which counted words; the correlation of Masculine with Length of letter was .51, Feminine with Length of letter was .31. The correlation between Masculine and Feminine words was .30, $p = .001$. The only correlation which is not confounded by frequency counts was Masculine and presence of a Negative Statement (.23, $p = .001$). Letters of recommendation containing more masculine terms were less likely to contain a negative statement.

An interesting relationship between performance and sex-typing was found in Experimental-Social Psychology. Student Performance, a composite measure of all performance, was negatively related to number of Feminine or Interpersonal descriptors in a letter (-.428) and contributed first to the multiple regression on Feminine words. Student Performance was significantly correlated (.415) with proportion of Masculine words (over Feminine and Masculine words). Thus, in Experimental-Social Psychology, there appears to be a negative implication of Feminine words in the letter of recommendation.

Number of Different Positive Attributes

The mean number of different positive attributes mentioned in a letter was 12.32 and the standard deviation was 6.93. Two-way analyses of variance with sex of applicant and department, year of recruitment, area, and institutional quality showed no main effects of sex of applicant but an effect of department ($F = 22.43$, $p = .001$) with Psychology letters containing more positive attributes, and area ($F = 9.46$, $p = .001$). An interaction of sex of applicant and area was found ($F = 3.16$, $p = .02$) and can be seen in Table 23. In the Clinical area alone, more positive attributes were found in letters for females than in letters for males.

Table 23
Mean Number of Different Positive Attributes

Area	Sex of Applicant Female	Male	p
Clinical	15.07	11.70	.01
Developmental	13.91	14.09	ns
Experimental-Social	12.17	12.68	ns
Sociology	11.26	10.96	ns

A main effect of institutional quality was also found ($F = 4.14$, $p = .04$) with more highly reputed institutions' letters containing more positive attributes (12.81 versus 11.91).

As with other frequency measures, the number of positive attributes correlated highly with other variables affected by frequency. For example, the number of positive attributes correlated .56 with length of letter, .50 with ability, .45 with effort, .68 with masculine words, and .50 with feminine words.

Presence of a Negative Statement

Eighteen percent of the letters contained a negative statement about the candidate. A trend was found ($x^2 = 2.86$, $p = .07$) for more letters for females to contain at least one negative statement (females--20%, males--16%). The marginal effect is specified more by controlling for year, department, and area. Sex of recommender and sex of applicant by sex of recommender showed no effects. Using the broad category of department, Sociology letters contained more negative statements about females ($x^2 = 4.34$, $p = .04$); 24% of the letters written for females in Sociology contained negative statements compared to 14% of those written for males. The breakdown by area again shows this effect, as seen in Table 24.

Table 24
Presence of a Negative Statement by Sex of Applicant and Area

Area	Sex of Applicant Female	Male
Clinical*	24%	16%
Developmental	16%	17%
Experimental-Social	15%	17%
Sociology	24%	14%

*The Clinical letters written for females approximate the same percentages as those in Sociology, but because the sample size for Clinical was smaller the effects were not significant.

Also, more letters for females contained negative statements only in the 1975-1976 academic year ($x^2 = 4.49$, $p = .03$; 21% for females, 15% for males). In the 1977-1978 year, no differences were found (17% and 18%).

In general, although some bias is seen in the presence of a negative statement, it is shown only by Sociology and only in the earlier year of recruitment.

Research and Teaching Skills

Two separate types of analyses were conducted on words devoted to research and teaching skills respectively and words of direct evidence devoted to each of these two types of skills: Chi-squares with presence-absence scoring and--the more controlled and informative type of analysis --Anova's on proportional measures for each variable which corrected for either length of letter or the frequency of words in each of the two skill categories.

The mean number of words on research within a recommendation was 88.63 (s = 99.02), while the mean number of words of direct evidence related to research was 65.14 (s = 94.76). The corresponding figures for teaching skills were 68.42 (s = 70.17) and 40.14 (s = 69.11). Eighty percent of all letters had references to research abilities and experiences, while slightly more (84%) had similar references to teaching. When words of direct evidence were examined, a reverse pattern was found: Fifty-five percent of all letters contained evidence concerning research, while only 45% had evidence about teaching. Research Minus Teaching, a difference indicator, was used to investigate emphases on research versus teaching (via frequency counts) in female as opposed to male letters. The Proportion of Words on Research ($\bar{X}$ = .27, s = .22) and on Teaching ($\bar{X}$ = .23, s = .20) corrected for length of letter, while the Proportion of Words of Direct Evidence on Research($\bar{X}$ = .47, s = .47) and on Teaching ($\bar{X}$ = .35, s = .44) compensated for biases due to the word count on research and teaching respectively. All Evidence, a composite measure which examined the proportion of words of direct evidence on either research, teaching, or clinical skills[7] and corrected for length of letter, had a mean of .34 (s = .28).

The frequency of words on research was significantly related to: length of letter (r = .63), words indicating ability (r = .29), words indicating masculinity (r = .43), the number of positive attributes (r = .41), positive mention of publications or presentations (r = .36), the frequency of highest intensity modifiers (r = .40), and the frequency of moderate intensity modifiers (r = .37). The number of words of evidence on research was related to: length of letter (r = .56), masculine terms (r = .38), the number of positive attributes (r = .37), positive mention of publications or presentations (r = .37), the frequency of highest intensity modifiers (r = .35), and the frequency of moderate intensity modifiers (r = .31). With the exception of ability references and positive mention of publications/presentations, the same dependent variables were found to be related to the number of words on

[7]Clinical skills will be explored separately in the next section.

teaching and on evidence about teaching respectively, though the correlations were uniformly lower than those cited above. Although many letters talked about neither research nor teaching, a correlation of -.26 was found between the proportion of words devoted to these two key dimensions.

Several other measures of attention to research and teaching were investigated via Chi-square analysis: mention of research versus teaching first or only, positive references to publications/presentations or teaching evaluations respectively, the presence-absence of extensive descriptions of the applicant's research, and the presence-absence of positive mentions of either publications/presentations or teaching evaluations (Objective Evidence). Fifty-three percent of all recommendations mentioned research first or only, while only 36% cited teaching skills first or only. Twenty-one percent of the letters had positive references to publications and/or presentations; 12.5% mentioned teaching evaluation; 31% contained extensive descriptions of the candidate's research; and 30% possessed Objective Evidence.

Chi-square analysis revealed no sex of applicant differences for the presence of words on research or teaching or on direct evidence concerning teaching.[8] A marginal trend ($\underline{x}^2 = 2.75$, $\underline{p} = .097$) was shown for female applicants to have more letters containing evidence on research than did male applicants. No sex differences were found for favorable mentions of publications/presentations or teaching evaluations or on our composite measure, Objective Evidence. Marginal trends were found for letters written for women to have research mentioned first or only more frequently than did those for men (56% versus 51%, $\underline{x}^2 = 6.56$, $\underline{p} = .087$), and for female letters to contain more extensive descriptions of research (34% versus 29%, $\underline{x}^2 = 3.29$, $\underline{p} = .07$) than did male letters.

Sex of recommender showed no significant results when introduced into the relationship between sex of applicant and the presence-absence of words or direct evidence on research or teaching, mention of research versus teaching first or only, mention of publications/presentations or teaching evaluations, extensive descriptions of research, or objective evidence. Academic area similarly failed to specify the relationships between sex of applicant and the presence-absence of words on research or teaching, extensive descriptions of research, mention of publications/presentations or teaching evaluations, or objective evidence. Only Sociology revealed a sex difference on the presence of words of research evidence ($\underline{x}^2 = 4.16$, $\underline{p} = .041$): Fifty-one percent of recommendations for female candidates as opposed to 41% of those for males contained such evidence. The presence of teaching evidence produced a sex difference only in Clinical Psychology ($\underline{x}^2 = 3.81$, $\underline{p} = .05$) where 39.5% of female letters but only 24.4% of male ones included such evidence. Again, only in Sociology was research mentioned first or only for females more

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[8]It should be noted that the presence-absence measures on words about research or teaching are less precise (and appropriate) measures than are proportional word measures.

frequently than for males (in 57.5 as compared with 45% of the letters, $\underline{x}^2 = 5.84$, $\underline{p} = .016$).

When year of recruitment was controlled and the relationships between sex of applicant and the presence-absence of words or direct evidence regarding research and teaching respectively were reexamined, only one significant difference emerged: Forty-seven percent of the letters written for females applying for positions in 1975-1976 contained evidence on teaching, while only 39% of those for males did ($\underline{x}^2 = 4.36$, $\underline{p} = .04$). The recommendations for the 1977-1978 recruitment year revealed the opposite pattern, 44% of female versus 52% of male letters having such evidence. Because of the small sample size in 1977-1978 (331 versus 718 letters in the earlier year), however, the 1977-1978 pattern was not significant.

Year of recruitment also specified the relationship between sex of applicant and the first or only mention of research versus teaching: While no sex differences were found for 1975-1976, in 1977-1978 68% of letters written for women referred to research first or only as compared with 49% of those for men ($\underline{x}^2 = 12.4$, $\underline{p} = .006$). Similarly, there were no male-female differences on extensive descriptions of research in 1975-1976, but more female than male recommendations (41% as opposed to 30%) contained such discussions in 1977-1978 ($\underline{x}^2 = 4.00$, $\underline{p} = .04$). Year of recruitment did not specify the relationship between sex of applicant and mention of publications/presentations or teaching evaluations or objective evidence. In sum, the trend over time suggests a growing emphasis on teaching for men and on research for women.

When institutional quality was controlled, no relationship emerged between sex of applicant and the presence of words on teaching or of evidence on research or teaching or the mention of research first or only or teaching evaluations. In more prestigious institutions, however, research words were more likely to be present in male than in female letters (87.5 versus 77.5%, $\underline{x}^2 = 6.91$, $\underline{p} = .009$), while the reverse pattern held in less prestigious universities: Seventy-four percent of male recommendations contained research words while 82.7% of female ones did ($\underline{x}^2 = 6.65$, $\underline{p} = .01$).

Recommenders from higher-level institutions, moreover, were significantly more likely ($\underline{x}^2 = 5.16$, $\underline{p} = .023$) to mention publications and presentations in their letters for men than in those for women (25 versus 15.9%). No relationship appeared for recommenders from lower-level institutions. Institutional quality also specified extensive descriptions of the candidate's research, but the pattern indicated above was reversed on this dependent variable: While prestigious schools revealed no sex differences on research descriptions, less prestigious ones showed a marginal trend ($\underline{x}^2 = 5.84$, $\underline{p} = .054$) for female letters to contain extensive descriptions of research more often than did male letters (33 versus 24.8%). Finally, institutional quality specified the relationship between sex of applicant and objective evidence. While no sex difference emerged in lower-level institutions, in high-quality universities 35.6%

of letters for males but only 23.8% of those for females contained objective evidence ($\underline{x}^2 = 6.92$, $\underline{p} = .008$).

Proportional measures on research and on teaching, which eliminated potential confounding by length of letter, were examined via analysis of variance. The proportion of words devoted to research revealed no main effect of sex of applicant but did show a two-way interaction of sex of applicant and academic area ($F = 2.67$, $\underline{p} = .045$), with female Sociology candidates receiving a higher proportion of words on research than did males while the reverse was true for the other three areas (see Table 25).

Table 25
Mean Proportion of Words on Research and Teaching (Skill Area) by Sex of Applicant and Academic Area, Year of Recruitment

	Skill Area							
	Research				Teaching			
	Sex of Applicant		$\underline{t}$	$\underline{p}$	Sex of Applicant		$\underline{t}$	$\underline{p}$
Academic Area	Female	Male			Female	Male		
Clinical	.169	.204	ns	ns	.139	.144	ns	ns
Developmental	.330	.338	ns	ns	.269	.220	1.7	.05
Experimental-Social	.314	.328	ns	ns	.246	.215	ns	ns
Sociology	.273	.217	2.74	.005	.242	.276	1.81	.05
Year of Recruitment								
1975-1976	.257	.265	ns	ns	.230	.209	ns	ns
1977-1978	.321	.255	10.57	.0005	.237	.274	1.7	.05

In addition, a main effect by academic area was found ($F = 20.63$, $\underline{p} = .001$), with Developmental ($\bar{X} = .334$) and Experimental-Social Psychology ($\bar{X} = .321$) devoting proportionately more words to research than did either Clinical Psychology ($\bar{X} = .187$) or Sociology ($\bar{X} = .245$).[9]

Teaching, the other major aspect of academic competence, similarly showed no main effect of sex of applicant, but a two-way interaction of sex of applicant and academic area ($F = 2.64$, $\underline{p} = .047$). The interaction found, however, was not in the same direction as that found for research (see Table 25). Female Sociologists received a lower proportion of words on teaching than did their male colleagues, while the opposite pattern prevailed among those in Developmental Psychology. Among Clinical candidates, the proportion of words on teaching was particularly low (14%), and no sex differences were found. A main effect by academic area ($F = 15.31$, $\underline{p} = .001$) was also found, with Clinical candidates having proportionately fewer words on teaching than did candidates in the other three areas.

[9]It should be mentioned that Clinical Psychology and Sociology, the two areas showing the largest female-male differences, also had the lowest proportion of words on research.

The proportion of words of direct evidence on research and on teaching, constructed to eliminate possible confounding by the number of words on each skill area, showed main effects only by academic area. For the proportion of words of evidence on research ($F = 15.27$, $p = .001$), Clinical ($\bar{X} = .385$) and Sociology ($\bar{X} = .394$) candidates had proportionately less research evidence than did Developmental ($\bar{X} = .598$) or Experimental-Social ($\bar{X} = .577$) ones. For the proportion on teaching ($F = 5.21$, $p = .002$), Clinical candidates had less such evidence than did those in the other areas. No two-way interactions with sex of applicant emerged. Finally, a main effect of sex of applicant ($F = .38$, $p = .048$) did emerge for All Evidence, our composite evidence variable, with females having more such evidence than did males ($\bar{X}$ for females = .357, $\bar{X}$ for males = .323).

Year of recruitment revealed no main effect of sex of applicant but an interaction with sex of applicant for the proportion of words devoted to research skills ($F = 6.35$, $p = .011$). Table 25 shows that women candidates received a higher proportion of research words in 1977-1978. This gap in the proportion of words devoted to research for females and males results from a considerable increase in the proportion for women over the two-year period and a slight but corresponding decrease in it for men, and suggests a recent tendency to favor females. When the proportion of words on teaching was examined, no main effect for sex of applicant emerged, but a two-way interaction of sex of applicant and year of recruitment appeared ($F = 4.89$, $p = .026$): Female job applicants received a higher proportion of words on teaching in 1975-1976 but a lower proportion in 1977-1978 (see Table 25). In fact, from 1975-1976 to 1977-1978, the proportion of words devoted to teaching increased for males but not for females, the opposite of what was found for research. Finally, no main effect of year of recruitment or two-way interaction occurred for All Evidence.

No main effects of sex of applicant or year of recruitment or interaction of sex of applicant and year of recruitment were found for the proportion of words of <u>evidence</u> on research. For the proportion of <u>evidence</u> on teaching, an interaction between sex of applicant and year of recruitment was found ($F = 4.59$, $p = .03$), with female applicants having a higher proportion in 1975-1976 (mean for females = .37, mean for males = .31) and males having a higher proportion in 1977-1978 (mean for females = .34, mean for males = .40).

Institutional quality produced no main effects or two-way interactions on the proportion of words on teaching or of direct evidence on research or teaching or on All Evidence. A main effect of institutional quality for the proportion of words on research ($F = 4.70$, $p = .029$), however, was found, with higher-level institutions ($\bar{X} = .287$) devoting proportionately more words to research than do lower-level ones ($\bar{X} = .257$). Additionally, an interaction of institutional quality and sex of applicant ($F = 4.66$, $p = .029$) emerged with higher-level institutions having proportionately more research words for male versus female candidates ($\bar{X}$ for males = .297, $\bar{X}$ for females = .277) while less prestigious

institutions showed the reverse pattern ($\bar{X}$ for males = .237, $\bar{X}$ for females = .277).

Analysis of variance revealed no main effect of sex of applicant for Research Minus Teaching but a two-way interaction with year of recruitment ($F = 3.93$, $p = .045$) and institutional quality ($F = 5.23$, $p = .021$). As Table 26 indicates, the letters for females devoted more words to research relative to teaching than did those for males in 1977-1978, reversing a nonsignificant pattern favoring males in 1975-1976. In terms of institutional quality, letters for males as opposed to those for females emphasized research relative to teaching in higher-quality universities, while the finding was reversed but was not significant in lower level institutions.

Table 26
Research Minus Teaching by Sex of Applicant and Year of Recruitment, Institutional Quality

Year of Recruitment	Sex of Applicant		t	p
	Female	Male		
1975-1976	14.99	23.88	ns	
1977-1978	32.38	12.78	1.65	.05
Institutional Quality				
High-Level Institution	17.94	36.03	1.77	.05
Low-Level Institution	22.32	9.52	ns	

A main effect for academic area also occurred ($F = 5.66$, $p = .001$) with Developmental ($\bar{X} = 38.52$) and Experimental-Social Psychology ($\bar{X} = 33.37$) devoting far more words to Research Minus Teaching than was the case for either Clinical Psychology ($\bar{X} = 18.73$) or Sociology ($\bar{X} = 5.97$).

An overall generalization might be that both the "words" and "evidence" variables in the latest year favor females with regard to research and, to a lesser degree, males with regard to teaching. This represents a change from the notion of female as teacher and male as scientist, and is especially true of Sociology. Clinical Psychology exhibits a pattern which is distinct not only from Sociology but also from the other areas of psychology. Another important qualification of this pattern involves institutional quality: Recommenders from prestigious universities consistently provide more information concerning the research abilities and skills of male than of female applicants, while letter-writers from lower-level schools describe the research activities of female candidates more fully than they discuss those of males. In view of the fact that males far exceeded females at the highest levels of research productivity, however, the general emphasis on research in the letters for females is surprising.

Clinical Skills

Like words on research and teaching, words on Clinical Skills and words of Direct Evidence on Clinical Skills were analyzed using both Chi-squares, with presence-absence scoring, and Anova's on proportional measures which compensated for either length of letter or the actual word count on clinical skills. Since these skills are of relevance only to Clinical Psychology candidates, however, the findings reported here refer only to the 81 female and 90 male clinical letters.

The mean number of words devoted to clinical abilities and experiences was 76.3 ($s = 93.3$); that for clinical words of evidence, 56.8 ($s = 85.5$). The mean proportion of clinical words (corrected for length of letter) was .25 ($s = .26$) and that for the proportion of words of clinical evidence (corrected for the number of clinical words) was .45 ($s = .46$). Seventy-three percent of all clinical letters contained words on clinical skills whereas 53% of them had clinical evidence.

Chi-square analysis showed that 86.4% of the recommendations for female applicants included clinical words whereas only 61.1% of those written for males did ($\underline{x}^2 = 12.6$, $\underline{p} = .0004$). When clinical evidence was examined, a similar pattern emerged: sixty-three percent of the letters written for women had such evidence as compared with only 43.3% of those for men ($\underline{x}^2 = 5.82$, $\underline{p} = .016$). Institutional quality specified these patterns. Among more prestigious universities, no relationship between sex of applicant and the presence of clinical words appeared; among lower-level institutions, however, female candidates had clinical words in 90.5% of their letters, and male applicants in only 58.9% ($\underline{x}^2 = 10.44$, $\underline{p} = .001$). A marginal trend was found for females from higher-level institutions to have more letters with clinical evidence than did their male counterparts (64.1 versus 41.2%, $\underline{x}^2 = 2.97$, $\underline{p} = .085$), but no such trend emerged for lower-level universities.

As to sex of recommender as a control variable,[10] male recommenders appeared much more likely to write recommendations which contained clinical words for female than for male candidates (83.1 versus 56.6%, $\underline{x}^2 = 9.54$, $\underline{p} = .002$). Since only 30 clinical recommenders were females, Chi-square testing on this subsample is meaningless and not reported. The number of words of clinical evidence did not produce significant results when sex of recommender was controlled.

Analysis of variance revealed a main effect of sex of applicant on the proportion of words of clinical skills ($F = 7.69$, $\underline{p} = .006$, $\overline{X}$ for females = .31, $\overline{X}$ for males = .20), and for the proportion of words of clinical evidence ($F = 4.16$, $\underline{p} = .04$, $\overline{X}$ for females = .53, $\overline{X}$ for males = .39). No main effects of institutional quality or two-way interactions were found. Since Clinical females obtain more of their recommendations

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[10]Since no clinical positions were available in 1977-1978, Chi-squares and Anova's by year of recruitment were not run.

from letter-writers at major outside (i.e., non-university) institutions, it might be argued that their letters include proportionately more clinical words and clinical evidence than do those of males because they have more letters from clinical advisers. To test this hypothesis, partial correlation coefficients were computed for the proportion of both clinical words and clinical words of evidence controlling for the affiliation of the recommender. The relationship between both dependent variables and sex of applicant remained unchanged and significant when the recommender's affiliation was held constant.

Comparative Statements

Comparisons which favorably ranked candidates in relationship to other students (i.e., among the top ten percent of students or higher) occurred in 15.7% of the recommendations. Statements which favorably compared job applicants with others on specific traits or behaviors (e.g., "Jane Smith has one of the finest dissertations among our current crop of students") were found in 25.8% of letters. Separate analyses for Favorable Comparisons with Faculty on Teaching and on Research were planned as these are particularly important indicators of professional development but their percentages, 3.1 and 1% respectively, were too small to permit Chi-square testing. A final measure of comparisons, All Comparisons, combined the above four measures by scoring the presence of any favorable comparison and was found in 36.2% of the letters. However, Comparisons with Students, Comparative Statements, and All Comparisons showed no significant results when subjected to Chi-square tests with sex of applicant or when academic area, sex of recommender, year of recruitment or institutional quality were introduced as controls.

Modifiers

For the frequency of highest intensity modifiers (HI), those indicating excellence and exceptionality (mean = 2.96, s = 3.21), analyses of variance revealed no main effects of sex of applicant. Main effects, however, of department ($F = 7.10$, $p = .008$), area ($F = 8.53$, $p = .001$), and year ($F = 5.47$, $p = .02$) were found, as well as a marginal interaction of sex of applicant and year of recruitment ($F = 3.17$, $p = .07$). Psychology letters contained more HI modifiers than Sociology letters (3.19 versus 2.76), Developmental Psychology more than the other areas (3.80 versus 2.93, 2.68, and 2.62), and 1977-1978 more than 1975-1976. The marginal interaction showed that in 1975-1976 males' letters had more HI modifiers than did females' letters (2.90 versus 2.60) and in 1977-1978, females' more than males' (3.37 versus 3.01).

For the analyses of variance of frequency of moderate intensity (MI) modifiers (such as "very," "good"), sex of applicant had a marginal main effect ($F = 2.86$, $p = .09$) with females' letters (4.88) containing more MI modifiers than males' (4.50). Year of recruitment, institutional quality, and departmental effects were not significant. An academic area effect was found ($F = 2.62$, $p = .05$) with Developmental letters

again containing more MI modifiers (5.33 versus 4.64, 4.67, and 4.45). Since Developmental Psychology had the longest letters, the area effects of HI and MI modifiers are most likely attributable to the length of the letter.

The variable Proportion of HI Modifiers, corrected for number of positive modifiers, did show an effect of sex of applicant ($F = 5.92$, $p = .01$). Letters for male candidates contained a higher proportion of HI modifiers than letters for females (.39 versus .35). No effects were found for department or area on proportion of HI modifiers. However, the proportion of HI modifiers was higher for females than males (.42 versus .39) in Developmental Psychology, opposite to the effects in the other three areas. A main effect was found for year of recruitment ($F = 3.86$, $p = .05$) with 1977-1978 containing proportionately more HI modifiers than in 1975-1976 (.39 versus .36), but no interactions were found for sex of applicant with year, department, or area.

Summary Recommendation

Highest Summary Recommendations (e.g., "I unqualifiedly recommend Jane Smith") occurred in 25.5% of the letters, but were found by Chi-square analysis to be unrelated to sex of applicant, or sex of applicant when controlled by sex of recommender, academic area, year of recruitment, or institutional quality. Such summary statements were also uncorrelated with other dependent variables which appeared in these letters, the highest r found being .097. Recommenders indicated that they would welcome the applicant as a colleague in 10% of the letters. Again, welcome as a colleague proved unrelated to sex of applicant whether examined by itself or when sex of recommender, academic area, year of recruitment, or institutional quality were held constant.

Discussion of Non-job Related Qualities

These variables included references to the candidates' attributes which are not specifically tied to job performance as academicians. Included here are use of marital designation in referring to the female candidate (Miss or Mrs.), discussion in the letter of marital status and assessment of marital status, direct reference to age or sex of the candidate, mention of an interrupted career, appearance, or hobbies of the candidate. On most of these variables the overall frequency was too low to do further analyses. Table 27 indicates the frequency of these personal indicators.

Table 27
Percent of Letters with Personal Indicators

Indicator	Percent
Marital Designation*	14%
Mention of Spouse and/or Children	5.1%
Assessment of Marital Status	4.0%
Appearance	4.6%
Hobbies	0.8%
Mention of Sex	16%
Mention of Age	15.8%
Interrupted Career	2.7%

*Percent of females, not total sample.

All variables were subjected to Chi-square analysis using sex of applicant and sex of recommender separately. Only Mention of Sex and Age were specified further because of the low frequency of the other variables.

Chi-squares using sex of applicant showed no effects on any of these variables except Mention of Age. Males' letters were more likely to include references to age (primarily young) of the candidate ($\underline{x}^2 = 3.88$, $\underline{p} = .05$; males--18%, females--13%). Sex of recommender effects were not significant for any of the variables except marital designation in the title. Female recommenders used marital designations more frequently in the letters (for females) than did male recommenders ($\underline{x}^2 = 17.16$, $\underline{p} = .0002$; females--9.2%, males--5.3%).

Sex of applicant effects were specified by sex of recommender and by institutional quality on both Mention of Age and Mention of Sex. For Mention of Age, male recommenders mentioned age more for male than female candidates ($\underline{x}^2 = 5.41$, $\underline{p} = .02$, male candidates--18%, female candidates --12%) while for female recommenders there is no difference (18% for both male and female candidates). No difference in Mention of Age was found in higher quality institutions (males--16.2%, females--14.4%), while in lower quality institutions, males' letters contained more references to age ($\underline{x}^2 = 3.98$, $\underline{p} = .045$; males--19.5%, females--13.0%).

For Mention of Sex, like Mention of Age, male recommenders mentioned the sex of the male candidates more frequently than they did for females ($\underline{x}^2 = 6.30$, $\underline{p} = .01$; male candidates--18%, female candidates--12%). Female recommenders mentioned sex equally frequently when talking about male or female candidates (18% for both). Similarly, in lower quality

institutions alone, male letters contained more references to their sex than did females' letters (x^2 = 7.35, p = .025; males--20.6%, females--12.9%).

Considering academic area, only in Developmental Psychology was sex mentioned significantly more frequently for males than for females (x^2 = 4.34, p = .04; males--22%, females--10%).

One interesting correlation found in this set of variable was that of mention of Appearance and number of Interpersonal (or Feminine) words. Letters in which the candidate's appearance was mentioned were more likely to describe the candidate in feminine, or interpersonal, terms (.22, p = .001).

Specific Terms

A number of individual terms were analyzed to see if terms thought to be frequently utilized in letters of recommendation would be differentially found in letters for females versus males. The following terms were examined: Bright, Sociological Imagination, Independent, Creative, Broad Background, Well Trained, Thorough, Conscientious, Well Organized, Popular (with Students), Analytic, and Mature. Three terms had a frequency of less than 10 percent: Sociological Imagination (.3%), Well trained (5.6%), and Analytic (3.6%) and were not partitioned further. The rest of the terms had a relative frequency ranging from 10 to 15 percent and thus occurred in 100 letters at least.

The only word which produced significant effects using several controls was Mature. A Chi-square analysis of the presence of Mature with sex of applicant showed that females were described significantly more frequently as mature (x^2 = 6.38, p = .011; females--17.5%, males--11.8%). When specified by sex of recommender, female recommenders were more likely to differentially use the word "mature" than were male recommenders (see Table 28) but the trend is in the same direction for male recommenders.

Table 28
Percent Use of the Term "Mature" by Sex of Applicant and Sex of Recommender

Sex of Recommender	Sex of Applicant Female	Male	x^2	p
Female	16.4 (111)	3.3 (60)	5.16	.02
Male	17.5 (395)	13.2 (447)	2.64	.10

Mature was also modified by year, department, and area. The effects were found in 1975-1976 and not in 1977-1978. (Although the percents are similar, the smaller sample size in 1977-1978 reduced the statistical

significance.) Psychology recommenders reserved the term "Mature" more for females than did Sociology recommenders (x^2 for Psychology = 11.62, p = .0007; females--21.7%, males--11.1%; Sociology--not significant: females--11.5%, males--12.6%).

Within areas, the most differentiation was found in Clinical Psychology and the least in Sociology (see Table 29). It is interesting to note that the percentages for females, and not males, vary by area.

Table 29
Percent Use of the Term "Mature"
by Sex of Applicant and Area

Area	Sex of Applicant Female	Male	x^2	p
Clinical	27.2% (81)	11.1% (90)	4.20	.012
Developmental	22.4% (98)	11.2% (89)	3.38	.065
Experimental-Social	17.6% (125)	11.1% (126)	1.65	.198
Sociology	11.6% (217)	12.6% (222)	.04	.837

Several trends occur with use of other selected words but they do not consistently appear nor do they reach the .05 level of significance. Male recommenders more frequently describe females than males as "Well Organized" (x^2 = 3.77, p = .05, females--14.2%, males--9.6%), while for female recommenders the results are in the opposite direction though not significant (x^2 = 2.09, p = .148; females--8.1%, males--16.7%).

In Clinical Psychology, there is a trend for females to be described as "Bright" (x^2 = 3.42, p = .064; females--28.4%, males--15.6%). Also, several trends occur with Institutional Quality. Higher quality institutions show less of a tendency to describe females as "Popular" (x^2 = 3.70, p = .15; females--6.6%, males--11.1%) while in lower quality institutions the percents are the same (11.2% versus 11.6%). There is also a trend in higher quality institutions for females to be described as "Conscientious" more often than are males (x^2 = 3.19, p = .07; females--15.9%, males--9.7%) with no difference in lower quality institutions (9.2% versus 8.7%).

Overall, in spite of distribution for these specific terms sufficient to allow for partitioning, only the term "Mature" showed any consistent pattern--that females are more likely to be labeled as mature.

Multiple Regression

Regression analysis was performed on the bank of letters as a whole and on the recommendations within each academic area separately. The independent variables employed in these regressions were: Sex of Applicant, Institutional Quality, Teaching Experience, Student Performance, Number of Grants, Number of Years as a Research Assistant, Number of Years as a Teaching Assistant, and Research Outcomes. The order in which these variables were entered was determined by their zero-order correlations rather than by an a priori ordering. All r^2's were corrected for the number of variables in the equation relative to sample size.

For each dependent variable, the ordering and, hence, contribution of the independent variables to the multiple r's vary considerably by academic area. Moreover, the size of the multiple r itself, that is, the total extent of predictability based on these variables, also differs by area. In spite of interesting patterns by area, sex of applicant rarely makes a unique and sizable contribution to the regression equation. Thus, though sex of applicant may be brought into the equation first, or last, it is not an important explanatory variable in letters of recommendation. It is important to note, however, that sex of applicant, for the most part, performs about as well in the multiple regressions as do the control variables.

Sex of Recommender

Sex of recommender was marginally related to Popular with Students ($x^2 = 5.46$, $p = .065$) with male recommenders slightly more likely to mention this characteristic than female ones (10.7 versus 8.8%). Similarly a trend ($x^2 = 6.76$, $p = .08$) emerged for male recommenders to mention research versus teaching first or only slightly more often than did their female counterparts (54.5 versus 51.2%). Among the most interesting of the sex of recommender findings was the tendency ($x^2 = 3.64$, $p = .056$) of male letter-writers to rely more heavily on comparisons than did female recommenders (37.9 as opposed to 29.8%). Clearly significant sex of recommender results occurred for Mature ($x^2 = 6.26$, $p = .044$) with 15.2% of males as compared with 11.7% of females using the term and for Feminine Terms ($x^2 = 13.59$, $p = .0002$) with 80.1% of the letters written by female recommenders containing at least one feminine word as compared with 65.3% of those written by male recommenders. As Table 30 reveals, female recommenders also appeared less likely to refer to applicants by first name ($x^2 = 5.52$, $p = .019$) or by full or last name ($x^2 = 3.93$, $p = .047$) and more likely to use titled references ($x^2 = 4.55$, $p = .033$) than were male letter-writers.

Table 30
Percent of First Name, Full or Last Name, and
Titled References by Sex of Recommender

	Sex of Applicant	
	Female (171)	Male (842)
First Name References	48%	58.1%
Full/Last Name References	14%	21%
Titled References	50.3%	41.1%

Discussion

Control Data

In general, the females in our study appear to be better students in such proximal criteria of success as undergraduate honors and Phi Beta Kappa, graduate school grades, fellowship support (often based on academic performance), and, lastly, grant awards. In comparison, males outperformed females on more distal indicators of success: co-authored and sole-authored publications, consulting jobs, postdoctorates, and professional services. Males also had more years as teaching assistants. The discrepancy between female grade achievement and male research productivity is interesting and consistent with the findings from several other studies (e.g., Hirschberg and Itkin, 1978; Bayer and Astin, 1975; Astin, forthcoming; Ladd and Lupset, 1976), although the findings in this area are somewhat inconsistent.

Since our control data are not dissimilar from findings from other studies which explore sex differences in academic performance and productivity, it is likely that our sample of letters is also representative of a larger universe of recommendations. Consequently, generalization from our data seems justifiable despite the absence of other studies on actual letters of recommendation.

Evidence for Bias

Clearly, the prototypical letter containing numerous and overt indicators of bias against women rarely occurred in this sample of recommendations. Only two of our letter measures indicated bias against female applicants: presence of a negative statement and proportion of highest intensity modifiers. Letters for females were more likely to contain a negative statement, however mild, and contained proportionately fewer highest intensity modifiers than did those for males. Also, letters for females contained more moderately intense modifiers. Both of these measures are unambiguously indices of the strength of a letter. In this period of letter inflation and open files, where direct negative comments rarely occur, the presence of a qualifier severely undercuts any positive statements in the letter. Similarly, the greater reliance on modifiers which indicate exceptionality is noticeable in a letter. Thus, to be described as an "outstanding" teacher is perceptibly more favorable than to be described as a "good" teacher. The more frequent use of moderate intensity modifiers in females' letters may well be seen by the reader as "damnation by faint praise." Accordingly, the more frequent presence of negative statements and the lower proportion of highest intensity modifiers for females suggest less enthusiasm and more qualification in letters written for females.

Supplementary evidence for biasing against females is found in the types of letters and recommenders, rather than in the content of letters themselves. In institutions of higher quality, males were more likely to have personal, rather than file, letters. Personal letters which

have been written for a specific institution create a more favorable impression than do letters from a placement file. In addition to showing more active interest in a candidate's future, personal letters are more physically appealing to the reader. They are less likely to be crowded into a small amount of space specified by the placement office, more likely to be very readable, less poorly and apparently duplicated, and, in general, more professional looking. By contrast with the finding in higher level institutions, however, females in less prestigious institutions have more personal letters written for them. The bias is pro-male in more prestigious institutions and pro-female in less prestigious institutions. In addition to the difference in regard to the file status of letters, Sociology showed sex differences in status of recommender with male applicants having higher level recommenders than did female applicants, i.e., full professors and above. In spite of the overall pattern of male recommenders having higher status than female recommenders and the overall greater proportion of male recommenders to male applicants, it is surprising that the male applicants in areas other than Sociology did not have recommenders with higher status than did female applicants.

A number of nonsignificant differences can be interpreted as evidence of nondiscrimination toward females, despite our initial hypothesis that these indicators would favor males. The measures include how the applicant is introduced (actively or passively), masculine words, length and extensivity of relationship between applicant and recommender, comparative statements, summary statements, and length of letter. These key and largely independent dimensions are differentially located in the letter and vary in both substance and measurement.

One critical subset of measures which might be expected to exhibit sex bias and deserves special comment is that of references to non-job attributes or personal life. In the lay literature,[11] the classic example of sex bias in recommendations involves the noting of special qualities of the (female) applicant which have nothing to do with job qualifications, for example, attractiveness, status of marriage, hobbies and interests. The findings in this study, however, suggest that in the academic disciplines of Sociology and Psychology at least, personal references are rarely made and are not more likely to be found in recommendations for females.

In general, then, the lack of sex differences on each of a number of important, but diverse, components of letters suggests a strong pattern of nondiscrimination against females, particularly in light of other directional differences which favor females. Several of the most theoretically interesting results, in fact, favor females, namely, those

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[11]"When you were finished and asked for recommendations, you got nice letters about your excellence as a mother-figure, or your elderly stability" (French, p. 338).

referring to formality of address, research and teaching words and evidence, the number of positive attributes, causal inferences, and mention of sex and age. Formality of address shows an overwhelmingly clear pattern. Females were referred to more formally than males on all four indices of formality of address. Four alternative explanations might account for this phenomenon. First, the greater reliance on formality with females might imply that the recommenders were less familiar with female applicants and their work. The literature on the protege' system would support such an explanation in view of findings that camaraderie is less common with cross-sex mentor-student relationships; hence, women are not called by their first names because mentors do not know them as intimately or on as equal terms as they know males. On the other hand, no sex differences in length of relationship and extensivity of knowledge were found.

A second reason for greater formality with females is the possible use of a code of chivalry dictating greater politeness with women. The chivalry code might be exemplified by the traditional use of full name when referring to a woman in a citation compared to the citation of males by last name alone. However, if formality of address represents only chivalry, one would anticipate no other sex differences which favor females. Moreover, since chivalry consciously and graciously grants a subordinate something, one would anticipate that other sex differences would favor the superior, i.e., male, over the inferior, i.e., female, and these sex differences do not occur.

Another closely related but conceptually distinct explanation for greater formality with females involves the notion of respect for their accomplishments, i.e., the giving of greater status and credibility to the female applicant by using a title more frequently. Yet, the control data does not support either male or female superiority; while females are better students, males publish more. In addition, in almost all cases recommenders have higher status than the applicants; therefore, the use of titled references does not imply respect based on differential status. In fact, most of the candidates, male and female, are in a transitional period from student to faculty status. Consequently, the use of titled references implies a symbol of respect not required by the accomplishments of the candidates. Since there are no sex differences in status of applicants, the question becomes one of why women are more frequently addressed by title than are men.

A fourth explanation seems most satisfactory and provides an interpretation of the sex differences in formality of language. In spite of growing informality over the three years of the study, we suggest that recommenders may be "bending over backwards" to avoid bias against women. In this particular case, the use of titles and the avoidance of first names counteracts the trivialization of women frequently conveyed by cues indicating intimacy and familiarity (Thorne and Henley, 1975). Because the familiarity and closeness cues have been traditionally associated with the treatment of women as subordinates, women require greater degrees of respect in order to achieve recognition of equal

status. To refer to a man by his first name is to suggest intimacy, colleagiality, and equality; it does not undermine his professionality. By contrast, to call a woman by her first name is to intimate inferiority, disrespect, and trivialization. It should be noted that form of address is an overt indicator of status and therefore one easily correctable. In view of recent attention to and demands for equal rights for women, one might well expect changes in stylistic (e.g., form of address) as opposed to substantive (e.g., intensity modifiers) indicators.

A more substantive measure which supports the notion of recommenders "bending over backwards" to eliminate sex discrimination toward females involves the importance of research in letters of reference in Sociology and in the more recent year. Three measures of emphasis on research favored females in 1977-1978: research mentioned first or only, proportion of words on research, and extensive description of research. Sociology letters for females, in addition, contained proportionally more words about research. Also, in less prestigious institutions, proportionally more words about research were found in women's letters. Although the most recent evidence favors females, there are contrary trends. Specifically, in Clinical Psychology and higher level institutions, proportionately more words are devoted to research in letters for males. With regard to teaching, on the other hand, year trends favor males in both the proportion of words devoted to teaching, especially in Sociology, and the proportion of words of direct evidence on teaching.

It should be emphasized, however, that research is the more prized endeavor in academic institutions. Though teaching may be valued, research output is typically the final arbiter--not only in hiring but also in tenure and promotional decisions. With respect to the research measures, even nonsignificant results would favor females in view of the consistently higher research output among males. Consequently, any letter evidence which clearly favors females concerning research is particularly noteworthy, and suggests again a bending over backwards. Perhaps recommenders are attempting to compensate in letters for the lower productivity of their female students by emphasizing research and deemphasizing teaching.

Still another finding which supports an almost conscious effort to eliminate bias toward females is found in the differential mention of age and gender of the candidates: recommenders, particularly males, are less likely to mention the age and gender of females than of males. This is surprising in view of the saliency of femaleness in male-dominated occupations and the importance of age in assessing female as opposed to male value (Sontag, 1972). Although less directly described as young or old, women are described, again mostly by male recommenders, as "mature," a possible euphemism for the term "older." These trends appear to indicate a purposeful avoidance of calling attention to the sex and age of the female. The same prohibition does not apply to male candidates.

Contrary to the psychological literature and our expectations, there was a trend for female letters to contain more causal attributions of both ability and effort. Were effort alone emphasized for females, these findings would not generate a pro-female interpretation; however, since both ability and effort are internal causes of success, the higher level of both for females suggests that females are seen as the origins of their own success (as opposed to succeeding due to luck and task ease).

The last clear evidence which is pro-female concerns the number of different positive attributes in a letter. Females in Clinical Psychology are described with significantly more of these attributes than are Clinical males.

The pattern of results for several indices is difficult to interpret as either unambiguously pro-female or pro-male: number of letters, the proportion of clinical words and clinical evidence, and feminine descriptors.

Female letters outnumbered male letters in Developmental Psychology; no sex differences are found in the other three academic areas. Additionally, more letters were written for females than males in high prestige institutions and more for males in less prestigious institutions. No predictions were made regarding number of letters because it is unclear whether the minimum number, three or four, of letters but extremely high quality ones as opposed to a composite of more letters creates a more favorable impression.

Similarly, although clinical words and evidence clearly favor female candidates, the weighting of a letter for an academic position with clinical skills is also ambiguous. Since Clinical females have more clinical words than males, equal research and teaching words, and research and teaching are the primary duties of academicians, the stress on clinical skills for females may not be to their advantage.

Finally, the patterns regarding feminine terms may suggest a bias in academia not against females, but against femininity itself. In letters of recommendation, one would expect more masculine terms, and they do occur more often. On the other hand, in more traditionally female areas such as Clinical and Developmental Psychology, more feminine words in general would be expected. In effect, the sex difference favoring females on feminine attributes is found in the one area--Clinical Psychology--in which feminine qualities are part of the job description; i.e., therapists are expected to be interpersonally as well as intellectually skilled. The Chi-square analysis suggests that in Experimental-Social Psychology, fewer letters refer to feminine qualities among females than among males. This finding might suggest "bending over backwards" to avoid bias in an opposite direction for females by describing them less in traditionally feminine ways. This tendency probably occurs only in traditionally non-female areas where those feminine qualities are not highly valued to begin with, as demonstrated

by the negative relationship between student performance and description of feminine qualities in letters in Experimental-Social Psychology, evidence that poorer students were more likely to be described in feminine terms. Since females also have higher student performance scores than males, the appearance of fewer feminine attributes may be simply a function of higher student performance, avoidance of discrimination against females in the letter itself, or some combination of the two. Clearly, though, the negative relationship between student performance and frequency of feminine attributes suggests a bias against femininity rather than females in traditionally masculine areas.

Changes from 1975-1976 to 1977-1978

When all the changes from 1975-1976 to 1977-1978 are examined, the unambiguous conclusion is that letters in the later year contain evidence of less bias against females than those letters written in the earlier year. The findings with respect to research skills, for example, show all the significant differences in favor of females occurring in 1977-1978. In contrast, the differences in favor of females on teaching variables are found only in 1975-1976. It should be recalled that, of these two types of skills, research is considered the more important in the vast majority of four-year academic institutions. While the gap in research publications decreased from 1975-1976 to 1977-1978, males continued to have a greater output than did females. Consequently, the overcompensation hypothesis is still applicable.

Other indicators also suggest a shift away from discrimination against women, namely, the absence of differences in 1977-1978 which appeared in 1975-1976 in: references to effort, the presence of negative statements, and the use of the word "mature." Additionally, the trend for highest intensity modifiers favors males in 1975-1976 and females in 1977-1978.

The number and scope of year shifts is surprising in view of the short time span under investigation. If letters had been compared over a longer period of time, e.g., from the fifties or even sixties--before discrimination in academia and affirmative action became salient concerns--to the present, sex differences would have been strongly anticipated. Indeed, probably more sex differences favoring males would have emerged from the data. Nevertheless, the fact that so many shifts occurred in this study suggests that letters of recommendation are much more amenable to rapid change than are elements of social structure, e.g., position and salary levels. In view of discrepancies in our indicators and of the differential subtlety and correctability of discriminatory cues, however, further investigation will be necessary to determine if the shifts uncovered in this study have stabilized or are still in transition.

Clinical Psychology

Clinical Psychology has a pattern of findings different from that of the other academic areas and therefore requires separate discussion. As in the other areas, males have more research output. On the other hand, females have more extensive clinical experience and, probably not unrelated, more recommendations from clinical supervisors.

The Clinical letters are consistent with the direction of the control data. A nonsignificant tendency was found for males to have proportionately more words devoted to research than females. Females, on the other hand, have proportionately more words on clinical skills, especially in less prestigious institutions, as well as on evidence about clinical skills. The difference in clinical words and evidence cannot be accounted for by the fact that females have more clinical recommenders. Although no sex differences were found in teaching experience, clinical females were more likely to have evidence about their teaching skills presented in the letters.

Several other indices in the letters showed sex differences for Clinical candidates. Females' letters were more likely to contain feminine words and the mean number of these words was significantly higher than in letters for males. It is important to note that forty percent of the males' letters did not contain any feminine or interpersonally-oriented words, a finding inconsistent with the expectation that letters for Clinicians would emphasize interpersonal, as well as instrumental, skills. Also, females' letters mentioned more (different) positive traits and were more likely to include the terms "mature" and "bright." In striking contrast to the other academic areas, Clinical females were referred to more informally than Clinical males.

In view of the control data and in contrast to the "bending over backwards" apparent in the other areas, the letters for Clinical Psychologists seem to be more accurate assessments of the distinct competencies of female and male applicants. There is no indication of clear bias. Feminine terms, while seemingly devalued in Experimental-Social Psychology, do not necessarily carry that connotation in Clinical Psychology where interpersonal skills are an inherent component of clinical work. Similarly, the use of greater informality with females could suggest a diminution of females, but it could also be indicative of a greater informality deriving from other than typically academic contexts, i.e., clinical job contacts. This interpretation is supported by the fact that females are described with a greater diversity of positive traits. However, to the extent that academic jobs emphasize research rather than clinical skills, the sex differences in letters, though accurate, may not have the consequence of favoring females.

Conclusion

While a few key indices favored males, more measures were biased toward females, particularly in the most recent year. The emphasis on

research in females' letters is notable in view of the lower number of publications listed by females in their vitae. Because of the nature of the disciplines studied and their well-publicized efforts at eliminating sex discrimination, one might expect a priori that Psychology and Sociology letters would exhibit less sex bias than would letters in other disciplines. In this connection, it is interesting to note that even within areas of Psychology, differential patterns were found. Clinical Psychology, in particular, has to be analyzed as a unique configuration. Accordingly, caution must be used in generalizing from this study to other academic disciplines and, certainly, to reference letters written outside of academia. Nevertheless, our measures of equity in letters of recommendation are of particular importance because, unlike other operationalizations of equity such as position or salary levels which take longer to redress, letters may show more immediacy of response to the awareness of inequity and social pressure. All of our measures which show change from 1975-1976 to 1977-1978 indicate movement away from traditional sex-stereotyping. If female Psychologists and Sociologists are subject to discrimination in the hiring process, our research suggests that it is not on the basis of the letter of recommendation.

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Appendix A

Codebook--Applicants

Var. 1 Applicant Number

(coded as a three-digit number)

Code: Record number.

Var. 2 Number of Letters

Code: 1 through 7
8. eight or more letters

Var. 3 Department/Area

Code:
1. Psychology - Clinical
2. Psychology - Experimental
3. Psychology - Developmental
4. Sociology

Var. 4 Sex of Applicant

Code:
1. female
2. male
9. dk

Var. 5 Race of Applicant

Code:
1. white
2. minority
9. dk

Var. 6 Year of Recruitment

Code:
1. 1975-76
2. 1977-78

Var. 7 Year of Doctorate

Code:
1. anticipated this year
2. awarded one year ago
3. awarded two years ago
4. awarded three years ago
5. awarded four years ago
6. awarded five to ten years ago
9. dk

Var. 8 Position Sought

Code:
1. lecturer
2. lecturer or assistant professor
3. assistant professor
4. assistant or associate professor
5. associate professor
6. associate or full professor
7. full professor

Instructions: If the applicant does not state the position sought, use the position description to code.

Var. 9 GPA: Proportion of "B's"

Instructions: Record exact proportion.

Var. 10 GPA: Proportion of "C's"

Instructions: Record exact proportion.

Var. 11 Phi Beta Kappa

Code:
1. yes
2. no
9. dk (no vita)

Var. 12 Undergraduate Honors (other than Phi Beta Kappa)

Code:
0. none
1 through 7
8. eight or more
9. dk (no vita)

Var. 13 Most Recent Teaching Position

Code:
0. none
1. part-time
2. instructor or lecturer
3. assistant professor
4. associate professor
5. full professor

Var. 14 Teaching Assistant: Number of Years

Code:
0. none
1 through 7
8. eight or more years
9. dk

Var. 15 Research Assistant: Number of Years

Code:
0. none
1 through 7
8. eight or more years
9. dk

Instructions: Include only part-time research experience at academic institutions.

Var. 16 Fellowships and Traineeships: Number of Years

Code:
0. none
1. less than a year to one year
2 through 7
8. eight or more years
9. dk

Instructions: Consider fellowships and traineeships if they are so labeled.

Var. 17 Post-Doctoral Study: Number of Years

Code:
0. none
1. less than a year to one year
2 through 7
8. eight or more years
9. dk

Var. 18 Outside Research Jobs: Number of Years

Code:
0. none
1. less than a year to one year
2 through 7
8. eight or more years
9. dk

Instructions: Include years of full-time research experience at doctoral-granting institution prior to receipt of degree.

Var. 19 Number of Grants

Code:
0. none
1 through 7
8. eight or more grants
9. dk

Var. 20 Number of Publications

Code:
0. none
1 through 7
8. eight or more publications
9. dk

Instructions: Treat books and articles as equivalent.

Var. 21 Sole Authorship of Publications

Code: 0. none
1 through 7
8. eight or more publications
9. dk

Var. 22 Number of Presentations

Code: 0. none
1 through 7
8. eight or more presentations
9. dk

Instructions: Count discussantship, chairship, publishing article in the proceedings of an association as presentations.

Var. 23 Sole Authorship of Presentations

Code: 0. none
1 through 7
8. eight or more
9. dk

Instructions: Count chair, discussant as sole authorship.

Var. 24 Professional Service: Number of Different Roles

Code: 0. none
1 through 7
8. eight or more
9. dk

Instructions: Includes such items as reviewer for a journal, ETS contributor, work on committees, officer in a regional or national association, and administrative service.

Var. 25 Consulting Experience: Number of Jobs

Code: 0. none
1 through 7
8. eight or more
9. dk

Var. 26 Clinical or Social Work: Number of Different Experiences

Code: 0. none
1 through 7

8. eight or more
9. dk

Var. 27 Teaching Experience

Code:
1. none or little: TA's only
2. 1-4 courses on own or less than a year's equivalency
3. more than 4 courses on own; equivalent of a full-time year
4. full-time teaching position: 1 year or more

Var. 28 Quality of Institution

Code:
1. above median
2. below median

Instructions: When no Roose and Andersen (1970) rankings exist, use Cartter (1966) or Endler et al. (1978) or Roche (1978).

Appendix B

Codebook--Recommenders

Var. 1 Sex of Recommender

Code:
1. female
2. male
3. dk

Var. 2 Position of Recommender

Code:
1. lecturer
2. assistant professor
3. associate professor
4. full professor, chair or director
5. dean
6. vice president or president
9. dk

Instructions: Use the highest position mentioned.

Var. 3 Relationship of Recommender to Applicant

Code:
1. outside-peripheral (e.g., consulting, non-acad.)
2. predoctoral institutions
3. outside-central (e.g., clinical, post-doctoral, teaching or research job supervisors)
4. doctoral-granting institution

Var. 4 Letter Personal or From File

Code:
1. personal
2. from file
9. dk

Instructions: Consider letters addressed to personnel of institutions other than CSCSB as "from file."

Var. 5 Presence of Marital-Status Salutation

Code:
1. present
2. absent
9. not relevant

Appendix C

Codebook--Letters

General Rules

1. The word "blank" has been substituted for the names of individuals (other than the applicant), institutions, publishers, cities, etc. Each blank should be counted as one word.

2. The applicant's name has been replaced with the words "first name, middle name or initial, last name, salutation" or "fn, mn, mi, ln, sal" as appropriate. Each such term (e.g., first name) is to be counted as one word.

3. "X" (or "pronoun") replaces the actual pronouns. Each such symbol counts as one word.

4. "Gender" refers to a noun which indicates sex; "polite" refers to "gentleman" or "lady."

5. Abbreviations (e.g., U.S., M.S., Ph.D.) count as one word.

6. Treat "diminuitive" as a "first name."

7. Watch your counting; some of you are occasionally sloppy on this, and we need accuracy (as you well know).

8. Be sure to record paragraph numbers (on the work sheet) for the "# of words" variables; it makes checking much, much easier.

9. If you have a question, don't hesitate to ask.

Var. 1 Initial Statement: Passive or Active

Code:
1. Active
2. Passive
9. Don't Know or NA

Instructions: Not just first sentence.

Examples

Passive	Active
X asked me to write	I am happy to write about
I am responding to your request for...	X asked me to write and I do so enthusiastically
	I wish to recommend

Var. 2 Mean Sentence Length

(Coded as a two-digit number): Code: Record exact number.

Instructions: 1. Record the # of words in each sentence.
2. Sum these scores.
3. Divide by the # of sentences.
4. Abbreviations count as one word.

Var. 3 Length of Letter (# of Words)

(coded as a four-digit number): Code: Record exact number.

Instructions: Record the number obtained at step 2 of Var. 2.

Var. 4 Length of Relationship

Code:
1. less than 1 year
2. one year
3. two years
4. three-five years
5. more than five years
9. NA

Instructions: "Several" or "few" years is coded as "three-five years;" "number of years" = more than five; "couple" = 2. "since X came to grad school", coder indicates on coding sheet.

Var. 5 Extended Knowledge

Code:
1. Present
2. Absent

Instructions:
1. If the recommender says that he/she knows X well, code as 1; if recommender says that he/she does not know X well, code as 2.
2. If recommender knows X in many capacities, code as 1.
3. If recommender knows X only as a student in one course, code as 2.
4. If recommender has a good working knowledge of X (i.e., provides much detail regarding X), code as 1.

Var. 6 Form of Address in Initial Statement

Code:
1. First name

2. Full name (first and last with or without middle initial or middle name)
3. Title or salutation and full name or last name

Var. 7 Frequency of Form of Address: First Name

Code: 0. None
1 through 7
8. eight or more

Instructions: Discount the initial reference in your tally.

Var. 8 Frequency of Form of Address: Last Name or Full Name

Code: 0. None
1 through 7
8. eight or more

Instructions: Discount the initial reference in your tally.

Var. 9 Frequency of Form of Address: Title or Salutation and Full or Last Name

Code: 0. None
1 through 7
8. eight or more

Instructions: Discount the initial reference in your tally.

Re: Var. 10 - Var. 13:

Check the lists very carefully. Some of you are adding attributes to these lists; others are missing attributes on the lists. In general, before counting any attribute which is not on the list, make note of the attribute (e.g., ambition), the variable to which you think it belongs, the letter in which you found it, and the number of times it appears in that letter. And, then, check with one of us. That way, you can easily include it if we decide that it should be counted, and we can let everyone else know about its status and thereby increase reliability. If a candidate is described as not having or inadequate on these variables (ability, effort, masc. and/or fem), do not count these attributes.

Example: X has not demonstrated the ability to...../I do not see X as developing into a highly productive researcher.

Var. 10 Causal Attribution of Success: Ability

(Coded as a two-digit number)

Code: Record the # of references to ability

Instructions: Record the exact number; if repeated, count again. Be careful to examine "able to" statements. Several of you are skipping these. You should only include them, please note, if they reflect ability as a cause of future success.

Examples
ability
able to
bright
brilliant
capable (of)
facility
gifted
imaginative
innate
intelligent
natural
natural ability
potential to
promise
smart
talented
not "achieved" outcomes such as "mastered" or "expert"

Var. 11 Causal Attribution of Success: Effort

(coded as a two-digit number)

Code: Record the # of references to motivation or effort.

Instructions: Do not include "ambition" as an indicant for "effort." These are not necessarily the same.

Examples
commitment or committed
dedicated
disciplined
enviable work habits
hard working
perseveres
serious (when used as a synonym for dedication but not when used as a personality trait)
tenacity in the face of adversity
well motivated
willingness

Var. 12 Frequency of Instrumental Attributes: Masculine

(coded as a two-digit number)

Code: Record the exact number of instrumental attributes

Instructions: Record the exact number in each case. If repeated, count again. These refer to task-oriented rather than person-oriented qualities.

Examples

ability
active
admired
adventurous
aggressive
ambitious
analytic
arrogant
assertive
athletic
autocratic
capable
clear
commands
competent
competitive
conceited
confident
constructive criticisms
creativity
critical
cynical
decisive
defends ideas or own beliefs
deliberate
demanding
determined
direct
dominant
(not) easily influenced
effective(ness)
enterprising
(not) excitable
expert
exploring
forceful
foresighted
frank
handsome
hard headed
high goals
imaginative
incisive
independent
industrious
ingenious
initiative
innovative
intelligent
intellectually curious
inventive
knowledgeable (ility)
leader
logical
mastered
makes decisions easily
objective
opportunistic
organizer
outspoken
practical
probing
productive
questioning
respected
rigorous
risk taking
scholarly
seeks out new...
self confident
self reliant
sharp witted
shrewd
stern
stimulator
strong
strong personality
successful
vigorous
well informed
willing to take a stand
tough
unbeatable
win admiration or respect

Do not include:

able
bright
dynamic
insightful
gifted
organized
outgoing
personable
stimulating
synthesizer
trustworthy

Var. 13 Frequency of Expressive Attributes: Feminine

(coded as a two-digit number)

Code: Record the exact number in each case. These refer to person-oriented rather than task-oriented qualities.

Instructions: Record the exact number. If repeated, count again.

Examples
affectionate
appreciative
attractive (woman)
childlike
cheerful
compassionate
composed
concern with students
concerned about people
congenial
considerate
cooperative
dependent
discrete
eager
eager to please
eager to soothe hurt feelings
easy to know
emotional
excitable
fearful
friendly
frivolous
gentle
helpful
insecure
intuitive
kind
loyal
modest
nondefensive
not outspoken
nurturant
open
neat
pleasant
praising
poised
puts others at ease
quiet
real concern
relates to others
sensitive to own feelings
sensitive to others' feelings
sensitivity
sentimental
shy
sincere
sociable
soft hearted
soft spoken
sparkling
supportive
sympathetic
tactful
talkative
tender
thoughtful (as an interpersonal quality, not as a synonym for reflective)
timid
unassuming

understanding	willingness to cooperate
undefensive	works well with others
warm	worrying
well liked	yielding

Not: insight, personable, popular, outgoing, trustworthy

Var. 14 Number of Different Positive Attributes

(coded as a two-digit number)

Code: Record exact number.

Instructions:

1. Note that these attributes may be expressed not only as adjectives or nouns but also via verbial phrases (e.g., expressed ideas well). These attributes should include causal attributes of success and instrumental and expressive attributes.

2. Do NOT count the same attribute twice (e.g., "communicates well" and "articulate" refer to the same attribute). This variable refers to the number of different attributes. After writing down all the attributes, check to make sure that you have not accidentally duplicated any traits; that is, included any synonyms.

3. Each of these attributes has to be framed in terms of traits of the person. Traits, by definition, refer to continuing qualities of individuals, and not to single incidents.
   E.g., "X has demonstrated good research skills" means that X is a good researcher.
   "X did a good research paper" means that X performed well in the past, not that X will continue to perform well.

4. Most attributes are described in the present (is) or future (will) tense. E.g., "X is a sensitive clinician." "X will make a first-rate teacher." Note, however, that attributes are sometimes described in the present perfect (has..., has been, has become) tense. E.g., "X has been making a major contribution to the field of social psychology." The key thing to remember, again, is that attributes always continue; that is, X can be expected to be a first-rate teacher, sensitive clinician, and major contributor in the future.

On a related note, past tense (was, did) and past perfect (had..., had done, had been) tense, by and large, indicate events in the past and not constant qualities of the person.

In all cases, however, you must check the context of the statement to make sure that what is described is an attribute rather than the person's experiences, activities, and/or duties. E.g., "X has accepted an overlaod this quarter" uses present perfect tense but refers to specific duties that we have no way of knowing will continue and thus does not indicate a trait. Tense, therefore, is an indicator of an attribute, but it will not supply you with a hard-and-fast rule. You must examine the context very carefully.

5. Many times traits are first stated and then elaborated or detailed. E.g., "X has excellent training in research methods, social stratification, and urban sociology." The trait here is "excellent training"; the three fields elaborate upon the training, and consequently should not be added separately. Be alert to a) items in apposition, b) traits followed by several objects, c) the word "in", and d) the term "that is." These situations tend to indicate elaboration.

   E.g., "X has a high effectance ratio--that is, most of what X does leads to visible results."
   "X has mastered the content and methods of social stratification."
   "X has developed an expertise in social psychology and psych of women."
   "X has a sociological imagination; that is, X knows how to conceptualize a problem, translate it into testable terms, and bring it to completion."

   The following example, however, is different. E.g., "X is a first-rate teacher, always well prepared, and able to present ideas in a stimulating and articulate manner." Although "first-rate teacher" is elaborated in this instance, it is elaborated by more personal qualities: well prepared, stimulating, and articulate. If the writer had said "was well-prepared," "presented stimulating ideas," "was articulate," only "first-rate teacher" would have been included as an attribute. "Able to" and "always" imply constancy and hence traits rather than past events.

6. Not specific "interest" or "specialization"

Examples

ability to persevere	capable of sustained growth
ambitious	conscientious approach to studies
accomplished writer	considerable background in...
bright	

broad knowledge
dedicated
deep knowledge
desire to tolerate differences
down-to-earth
drive
elan
enthusiastic
excellent grasp of the field
excellent sociologist
extremely able
expresses self well in both writing and oral work
fine grasp of key theoretical ideas
grapples with "big" questions
incisive critical perspective
intellectually curious
integrity
intelligent
knows the literature particularly well
Kudos as a teacher
likeable
personable
responsibie
skill of a craftsperson
strong mastery of subject
taught a wide variety of courses
talent
truly excellent instructor
tremendous amount of teaching experience
well read
well trained
willing to assume difficult teaching assignments
will not be pushed around or suffer others to be abused
versatility in teaching

Var. 15 Placement of Research vs. Teaching

Code:
1. Research first or only
2. Teaching first or only
3. Research and teaching simultaneously
9. NA

Instructions: Sometimes research and teaching are raised in the same sentence but then are later discussed separately. Use the separate discussion to determine the category in which to place the letter. Category #3 thus applies only when research and teaching are continuously discussed in the same sentence. This is likely to occur only when there are only one or two sentences devoted to research and teaching, an unusual circumstance.

Re: No's Variables (16, 17, 20, 21, 24, 25) Do not split up sentences unless they discuss more than one major activity.

Re: The variables which count the number of words related to teaching, etc. (Var's. 16, 20, 24)

1. Do not split up sentences unless they discuss more than one major activity, i.e., teaching, research, or clinical.

2. Check to see if the entire theme of a particular paragraph is teaching, etc. If, for example, one paragraph seems to focus on

research, and it includes one sentence which indicates that the candidate is bright, then the applicant means that sentence to refer to the candidate's research potential. Hence, that sentence should be included in your count. In general, then, determine the themes of the paragraphs before counting up words, and examine sentences in terms of the context of the paragraphs in which they are found.

3. Clinical experience refers to clinical applicants, and only to these applicants. Do not apply the # of words variable, evidence variable, etc. which deal with clinical experience to any other applicants.

Var. 16 Number of Words Devoted to Research

(coded as a three-digit number)

Code: Record exact number.

Instructions: Count up # of words devoted to research. Include the entire statement which refers to research. (Remember that the recommender may return to each topic several times.)

Re: Var. 17, 21, 25 (Evidence Variables)

If evidence is negative, discount it. Please, however, keep a running record of how many and which letters include negative evidence.

Var. 17 Number of Words of Direct Evidence Related to Research

(coded as a three-digit number)

Code: Record exact number.

Instructions:

1. Evidence refers to non-evaluative statements that describe the candidate's research experience, not the candidate's coursework or training.

2. Specifically, direct evidence refers to: 1) actual publications, presentations, or manuscripts out for review, 2) the writer's direct contact with the candidate's research skills (e.g., via joint research endeavors, supervision of RA or dissertation or MA or post-doc, or actual reading of candidate's work), 3) description of candidate's research (e.g., "X is currently examining sex role stereotypes on the CB radio."). If you think the recommender's judgment is based on evidence (for example,

because much detail is provided) but there is no clear indication of how the recommender obtained this information, do not include this as evidence. Do not use reputation or "I've heard from other colleagues" as direct evidence (e.g., "My experience with first name has not included supervising X's graduate research and so I can only indicate what X's supervisors have told me about X. They feel that FN is an imaginative researcher."). If the letter includes direct quotes from the supervisors, however, then these quotes are evidence. If the recommender indicates that she/he had the candidate as R.A. (or similar direct research contact), then the judgments become evidence.

3. Evaluative statements can be included if they are in the context of description.

4. Include research grant activities here.

Examples
X is currently researching...
X currently has four articles out for review
X and I are currently writing a paper on...
I have read X's paper on...and find it to be an insightful analysis of...
X and I have discussed several of X's research ideas.
"See the publications listed on vita" is evidential.

Var. 18 Positive Mention of Publications or Presentations

Code: 1. Present
2. Absent

Var. 19 Favorable Comparison with Faculty: Research

Code: 1. Present
2. Absent

Var. 20 Number of Words Devoted to Teaching

(coded as a three-digit number). Record exact #.

Instructions: Include the entire statement which refers to teaching. Count up # of words devoted to teaching. (Remember that the recommender may return to each topic several times.)

Var. 21 Number of Words of Direct Evidence Related to Teaching

(coded as a three-digit number).

Code: Record exact number.

Instructions:

1. Evidence refers to non-evaluative statements that describe the candidate's teaching experience, not the candidate's coursework or training.

2. Direct evidence refers to: 1) teaching evaluations (SETE's), 2) direct contact with the candidate's teaching skills (e.g., via joint teaching of a course, observation of teaching, supervision of TA, 3) description of teaching duties or experience (e.g., "X has taught undergraduates and graduates, returning students, exchange students, honors students, courses in deviance and social inequality, more than 20 courses, or fifteen preps.) Statements such as "I am impressed with X's articulateness and am sure X will be an excellent teacher" or statements which reflect hearsay or reputational evidence do not constitute evidence in our sense. Again, quotes from SETE's or Supervisor's observations are evidence. If the recommender indicates that s/he had the candidate as a T.A. (or similar direct teaching contact-such as dept. chair) then the judgments become evidence.

Examples
Description of teaching duties.
Observation of class.
Teaching evaluations.
No unsubstantiated judgments, even if a basis is implied. Skip "reputation for teaching."
"See the courses on the vita" is evidential

Var. 22 Favorable Comparisons with Faculty: Teaching

Code: 1. Present
2. Absent

Var. 23 Mention of Teaching Evaluations

Code: 1. Present
2. Absent

Instructions: "Kudos as a teacher" does not clearly refer to student evaluations of teaching; hence, skip!

Var. 24 Number of Words Devoted to Clinical Skills

(coded as a three-digit number)

Code: Record exact number.

Instructions: Include the entire statement which refers to clinical skills. Count up # of words devoted to clinical skills. (Remember that the recommender may return to each topic several times.).

Var. 25 Number of Words of Direct Evidence Devoted to Clinical Skills

(coded as a three-digit number)

Code: Record each number.

Instructions:

Make sure that you do not include the judgment, unless it is in the context of description. This variable refers only to clinical applicants. Direct evidence refers to: 1) direct contact with applicant's clinical skills (e.g., clinical supervisor) or 2) description of clinical duties (e.g., uses a behavior mod approach, has worked with children, prison inmates, group, and individual counseling.) Again, the above instructions with regard to reputation and supervisor's quotes (included by another recommender) apply. If the recommender indicates that s/he had the candidate as a clinical student (or similar direct clinical contact), then the judgments become evidence.

Var. 26 Comparative Statement
Mention of Rank in Comparison with Previous and/or Current Students at the Same Level

Code:
1. top one
2. top 5 or 99%
3. top 5 percent
4. top ten percent
5. top twenty percent
6. lower than twenty percent
9. Absent

Instructions: Use only comparative phrases to code: e.g., not "outstanding" or "brilliant." Disregard area (e.g., teaching, research) for comparison purposes.

Examples
Among the best: top five percent (#3)
Among the very best: top five or 99% (#2)

Var. 27 Comparative Statements

Code:
1. Positive - extreme
2. Positive
3. Negative
4. Absent

Instructions: Include all comparisons except for Var. 26, Mention of Rank in Comparison w/Previous and/or current students as the same level.

Examples: 1. One of the best researchers
The most capable sociologist I know
Far more intelligent than others

2. More productive than others
Better trained
Finer skills

3. Less well prepared
The least creative person I know

Re: Modifiers: Instructions:

1. Make sure the attribute is positive. Some of you are picking up modifiers of negative attributes (e.g., very scornful), but these should be avoided.

2. Be careful to check the context of modifiers. Some of you are picking up modifiers which refer to how well the recommender knows the applicant (very well) or to the nature of the program the applicant attended (very competitive). Again, the "modifier" variables refer to positive traits of the individual APPLICANT, not to negative traits of the applicant and not to anything else.

3. From now on, we will only count modifiers when they appear in print. E.g., "extremely bright and personable"--count "extremely" only once!!!!!

4. When you find modifiers which are not on the list, again make a note of them, where and how often they occur, and then check with us. This will help us to maintain a high level of reliability.

Var. 28 Frequency of Highest Intensity Modifiers

(coded as a two-digit number)

Code: Record exact number.

Instructions: Be sure to examine context of the modifier to determine that the attribute is positive. Count all modifiers, even if repeated. Do not include extensivity modifiers (e.g., always, consistently, never).

Examples

abundantly clear	exceptionally
altogether	beautiful(ly)
excellent	best

exemplary	outstanding
expert	rare
extraordinary	remarkable
extremely	starting(ly)
few who can (so)	superior
flawless	superb
first-rate	topnotch
great	totally
impressive	unbeatable
model of excellence	unusual
most	wealth of
	Not "Kudos"

Var. 29 Frequency of High Intensity Modifiers

(coded as a two-digit number)

Code: Record exact number.

Instructions: Be sure to examine context of the modifier to determine that the attribute is positive. Count all modifiers, even if repeated. Do not include extensivity modifiers (e.g., usually).

Examples

broad	quite
considerable	rather
fine	real
good	solid
high	strong
keen(ly)	substantial
major	very
marked	well
much	wide
particularly	Not: Kudos

Var. 30 Presence of Negatively-Phrased Positive Statements

Code:
1. Present
2. Absent

Instructions: Do not include phrases such as "I have no qualms" or "I have no doubts" as negatively-phrased positive statements. These refer to an attitude of the recommender, and not to positive traits of the candidate.

Examples

I have never heard a negative comment about X
I see no mannerisms which would preclude hiring X
Never unprepared

Var. 31 Presence of Qualifier

Code: 1. Qualifier present
2. Qualifier absent

Instructions:

1. Qualifiers are negative statements about the applicant; and they should clearly be negative. Some of you are picking up positive statements. Read the statement carefully. If the writer means the statement to be positive, it is not a qualifier. Thus, we will now consider all "Some might consider this to be a problem" statements as positive (since that is how the reader means them), and hence will not include them in this category. Again, statements to the effect that the recommender has no direct knowledge of the applicant's teaching (or res, etc.) are not qualifiers; they are statements of fact. The following are qualifiers: "X may not finish X's dissertation very quickly." "X is not very dynamic." "X is a very quiet person; still, X is competent." "I used to think that X was scornful of the very enterprise in which X was engaged."

2. If several qualifiers are present, merely categorize the letter as #1.

Examples
very quiet
guards X's privacy
obsessively compulsive

Var. 32 Mention of Physical Appearance

Code: 1. Present-Positive
2. Present-Negative
3. Absent

Examples
attractive
good-looking
well-dressed
clean-cut appearance

Var. 33 Mention of Gender

Code: 1. Present
2. Absent

Instructions: Regardless of how many times gender appears, consider it merely a mention in category #1.

Var. 34 Mention of Age

Code:
1. Young-Positive
2. Young-Negative
3. Young-Don't Know on Attitude
4. Older-Positive
5. Older-Negative
6. Older-Don't Know on Attitude
9. Absent

Examples

Young-Positive	Young-Negative
vigorous young gender	when x learns to handle self
attractive young gender	after a mellowing period
	even though x is young
	although x is young

Var. 35 Mention of Interrupted Career or Change in Career

Code:
1. Mention-Positive
2. Mention-Negative
3. Mention-Don't Know on Attitude
9. Absent

Examples

Positive
Distinguished career in public relations has been a better preparation for the university than uninterrupted schooling could have been.

Negative
even though or although X has changed fields
Though career was interrupted

Var. 36 Presence of Non-job Related Qualities

Code:
1. Present
2. Absent

Instructions: Refers to hobbies and interests and skills completely unrelated to academic qualifications.

Examples
good tennis player
throws fun parties
plays a great violin
great photographer

Does not include: "high integrity," "keen wit," "sense of humor," or "cooperative" as these are job-related.

Var. 37 Mention of Personal Life (Spouse and/or Children)

Code:
1. Present
2. Absent

Examples
spouse is also a sociologist
two lovely children

Var. 38 Assessment of Marital Status

Code:
1. Present-Positive
2. Present-Negative
3. Present - No assessment
4. Absent

Examples
good marriage vs. divorced or many problems in marriage

Var. 39 Highest Summary Recommendation

Code:
1. Present
2. Absent

Instructions: Go with highest recommendation.

Examples
Highest
Without hesitation (unhesitatingly)
Without qualification (unqualifiedly)
Without reservation (unreservedly)
Other possibilities (less common)
Superlative
a winner (in all respects)
Not: Excellent
Tremendous asset
Exceptional

Var. 40 Welcome as a Colleague

Code:
1. Statement present
2. Statement absent

Examples
wish we could hire
am trying to find a position for
tried to find money for
hate to lose

Var. 51 Analytic

Code: 1. Present
2. Absent

Var. 52 So

Code: 1. Present
2. Absent

Var. 53 Very

Code: 1. Present
2. Absent

Var. 54 Maturity/Mature

Code: 1. Present
2. Absent

Instructions: This refers only to an assessment of current status.

Var. 55 Extended Description of Research

Code: 1. Present
2. Absent

Instructions:

1. There must be at least 2 sentences of description.

2. There must be specific discussion of what the research is about.

Appendix D

How to Write a Favorable Letter of Recommendation

No explicit, objective criteria exist for evaluating the quality of a letter of recommendation. Although it is obvious that negative statements characterize an unfavorable letter, few recommendations--particularly in this age of open files and letter inflation--contain openly negative commentary. In our study, only 18% of the letters included even a hint of qualification. The difficulty, then, lies in discriminating among letters which all cluster at the favorable end of the spectrum. Put differently, the question is what distinguishes the exceptional recommendation from the mass of generally positive letters. For the most part, our judgments are based not on external criteria but on our experience of reading many hundreds of letters.

The length of a letter, to begin with, is the most straight forward characteristic of a recommendation. Obviously, short letters preclude the coverage of many critical attributes of a good letter. Longer recommendations inherently permit a finer and more extensive elaboration of the candidate's skills and qualities. This statement is evidenced in our study by the intercorrelations of length of letter with all frequency measures and even with many presence-absence indicators. Nevertheless, a long letter is not necessarily a favorable one. Note, for example, that length of letter is also significantly and positively associated with presence of a negative statement. Lengthy recommendations may provide the reader with little concrete information and evidence about a job applicant in that they may be composed primarily of lists of global attributes with little supporting evidence. Thus, the recipient of the letter may learn that the candidate is highly intelligent but may be supplied with no objective illustrations of this intelligence on which to base her or his own conclusions.

The tone of the recommendation may be set in the opening sentence. To the degree that the recommender expresses enthusiasm about the writing of the letter itself, greater interest in the candidate, and less of a sense of mere obligation, is conveyed to the reader. For example, "I am delighted to recommend..." is more actively positive than is "I have been asked to write a letter for..." Another and similar language-style aspect concerns the use of positively-phrased versus negatively-phrased statements. Such positively-phrased comments as "always prepared" sound more favorable than equivalent negatively-phrased statements, e.g., "never unprepared."

Two other dimensions which are distinguishable in letters of recommendations come out of the psychological literature on sex-typing: the frequency of masculine versus feminine terms, and causal attributions for success. Since the type of achievement valued in academia is presumably based on productivity and not likeability per se, we would expect qualities that stress competence and task-orientation rather than interpersonal skills to be more frequent. The typical pattern with

regard to masculine and feminine terms is to emphasize masculine terms and to tag a sentence or paragraph regarding feminine ones onto the recommendation almost parenthetically as if to imply that the candidate, in addition to being competent, also has some human qualities. Our data suggest that an emphasis on feminine or interpersonal terms, and a corresponding de-emphasis on masculine or task-oriented terms, indicates a weak candidate. One implication is that recommenders may be using interpersonal qualities as substitutes for inadequate or missing instrumental attributes. In a "male-centered university" (Rich, 1975), feminine, interpersonal skills are unimportant and therefore weighting them equally with or more heavily than instrumental qualities may undermine the standing of the candidate. Likewise, a stress on effort in contrast to ability may ultimately devalue an applicant because success on the basis of motivation or commitment, while laudable, is more ephemeral and less predictive of success than is the attribution of ability. That is, ability is a stable trait, while effort is a variable one. Effort attributions, accordingly, are not negative in and of themselves, but rather are less strong than ability attributions. As in the case of feminine and masculine terms, effort statements enhance a recommendation to the extent that they supplement rather than supplant ability terms.

Favorable comparisons also strengthen a letter of recommendation because they provide a reference scale for the letter-writer's judgment. Another and more general--though more indirect--form of comparison found in most letters is the use of modifiers, e.g., "good" and "outstanding." The highest intensity modifiers are, in fact, comparisons indicating uniqueness and excellence. When a candidate is described as a "superb" teacher, it is implicit that she or he is superior to most job applicants on this dimension and is clearly superior to someone who is labelled a "good" or even "very good" teacher. The presence of only a moderately positive modifier (e.g., "good") may actually be equivalent to "damnation by faint praise," since the reader may wonder why the recommender did not employ a more extreme adjective. Frequent use of moderate intensity modifiers may suggest not a response set in writing style, as it actually may be, but rather an attempt to write "between the lines."

Still another dimension which affects the interpretation of a letter is the reliance upon probabilistic versus certainty statements in predicting the candidate's future performance. Here, again, the differences in question (e.g., "I think" versus "Jane Smith is...") may derive from language style, but probabilistic statements are not as strong as surety statements. Projections of future performance are notable, particularly when cast in a surety framework, e.g., "Jane Smith is going to be a major contributor to the field of..."

Finally, to the extent that research, rather than teaching, continues to be the major performance variable related to hiring, retention, tenure, and promotion within academia, letters of recommendation which stress research appear more favorable than do those which emphasize teaching. If a letter can convince the reader that the candidate is likely to be a

productive contributor to the research literature, that letter is likely to carry considerable weight when deciding whether or not to hire the individual. In general, evidence regarding the candidate's research far outweighs in importance mention of research-oriented traits, for such evidence permits the reader to form her or his own conclusions concerning both the research competence and promise of the candidate and how well the applicant's research specialty meshes with the institution's needs.

In summary, readers of recommendation formerly determined the truth value of a letter on the basis of their personal knowledge of the recommender and the presence in the letter of the candidate's weaknesses as well as strengths. In the widening world of academia and in view of letter inflation, however, the reader can no longer trust subjective judgments presented with little or no supporting evidence. Consequently, concrete and detailed descriptive evidence of the candidate's research and teaching performance and the provision of other reference points are what makes the letter of recommendation useful in the hiring decision. In addition to eliminating such traditionally sexist comments as references to appearance, marital status, and age, a favorable letter of recommendation for a woman has the same properties as does a favorable letter for a man.